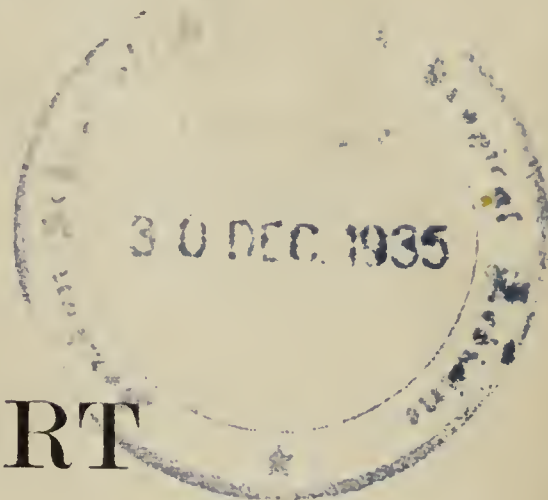


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FEDERATED MALAY STATES.



ANNUAL REPORT
OF THE
MEDICAL DEPARTMENT
FOR THE YEAR
1934

BY
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CONTENTS.

	Page.
INTRODUCTION	1
I.—ADMINISTRATION.—	
A.—Staff	1
B.—Legislation	2
C.—Finance	3
II.—PUBLIC HEALTH	4
Population	4
Births	5
Deaths	5
Infant Mortality	6
III.—HYGIENE AND SANITATION.—	
1.—Special Diseases :	
(i) Malaria	7
(ii) Plague	8
(iii) Cholera	8
(iv) Smallpox	8
(v) Typhus	9
(vi) Enteric Fever	9
(vii) Dysentery and Diarrhœa	9
(viii) Cerebro-spinal Meningitis	9
(ix) Diphtheria	10
(x) Leprosy	10
(xi) Tuberculosis	11
2.—General Measures of Sanitation :	
(i) Sewage Disposal	12
(ii) Refuse Disposal	13
(iii) Drainage	13
(iv) Water Supplies	13
(v) Offensive Trades	14
(vi) House Inspections	14
(vii) Estate Visiting	14
(viii) Mine Sanitation	15
(ix) Railway Sanitation	15
(x) School Hygiene	16

	Page.
(xi) Labour Conditions :	
A.—On Estates	17
B.—On Mines	18
C.—In Government Departments ...	19
(xii) Housing and Town Planning	19
(xiii) Food in Relation to Health and Disease :	
(1) Bakeries	20
(2) Milk	20
(3) Aerated Water Factories	20
(4) Markets	20
(5) Food Factories	20
(6) Restaurants and Eating Shops ...	20
(7) Piggeries	21
(8) Samples under the Sale of Food and Drugs Enactment	21
(9) Deficiency Diseases	21
(xiv) Measures Taken to Spread Knowledge of Hygiene and Sanitation	22
(xv) Training of Sanitary Personnel	23
IV.—PORT HEALTH AND ADMINISTRATION	23
V.—MATERNITY AND CHILD WELFARE	24
VI.—HOSPITALS, DISPENSARIES AND SPECIAL CLINICS.—	
(1) Hospital In-patients	26
Notes on Prevailing Diseases among Hospital Patients :	
(i) Malaria	28
(ii) Venereal Disease	29
(iii) Pneumonia	29
(iv) Pulmonary Tuberculosis	30
(v) Dysentery	30
(vi) Beri-beri	30
(vii) Anaemia	30
(viii) Chronic Ulcer	30

V.

Page.

Notes on Other Diseases :

(i) Leprosy	...	...	...	...	...	30
(ii) Enteric Fever	...	...	...	...	...	31
(iii) Tropical Typhus	...	...	...	...	...	31
(iv) Leptospirosis	...	...	...	...	...	31
(v) Japanese River Fever	...	...	...	...	...	31
(vi) Cancer	...	...	...	...	...	31
Racial Incidence of Certain Diseases among Hospital In-patients	...	...	...	...	...	32
Hospital Admissions and Deaths, by Races for all Diseases	...	...	...	...	...	32
(2) Out-patients	...	...	...	...	...	32
(3) Laboratory and Post-mortem Examinations in Hospitals	...	...	...	...	...	33
(4) Diseases among Europeans	...	...	...	...	...	34
(5) Surgery	...	...	...	...	...	35
(6) Radiology	...	...	...	...	...	36
(7) Ophthalmology	...	...	...	...	...	36
(8) Dental Surgery	...	...	...	...	...	38
(9) Social Hygiene	...	...	...	...	...	39
(10) Hospitals for Women	...	...	...	...	...	40
(11) New Buildings	...	...	...	...	...	40

VII.—INSTITUTIONS FOR MENTAL DISEASES AND FOR LEPROSY.—

A.—Central Mental Hospital	...	...	...	...	40
B.—Leper Settlements	...	...	...	...	44
1. Federal Leper Settlement, S u n g e i Buloh	...	...	...	...	44
2. Leper Asylum, Kuala Lumpur	...	...	...	...	46
3. Leper Settlement for Malays, Pulau Pangkor Laut	...	...	...	...	46

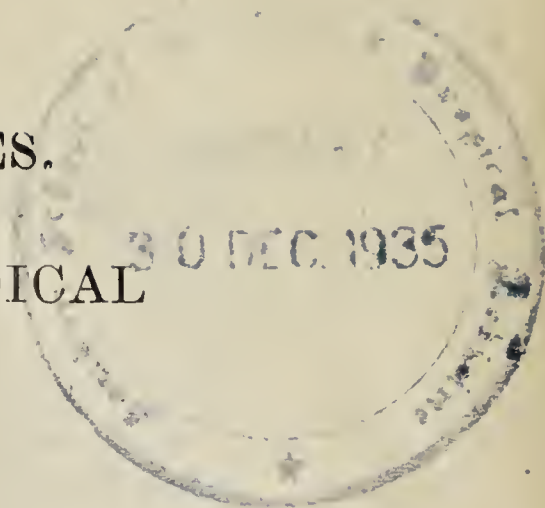
VIII.—PRISONS, CRIMINAL VAGRANT WARDS AND DECREPIT SETTLEMENTS.—

A.—Gaol Hospitals and Criminal Vagrant Wards	...	...	...	...	...	46
B.—Decrepit Settlements	...	...	...	...	...	47
IX.—INSTITUTE FOR MEDICAL RESEARCH	...	...	...	...	...	47

TABLE I.—STAFF OF THE MEDICAL AND HEALTH DEPARTMENT	...	...	...	...	50
„ II.—STATEMENT OF REVENUE AND EXPENDITURE	...	...	...	...	52
„ III.—RETURN OF DISEASES AND DEATHS (IN-PATIENTS)	...	...	...	...	53
„ IV.—RETURN OF DISEASES (OUT-PATIENTS)	...	...	...	...	64

FEDERATED MALAY STATES.

ANNUAL REPORT OF THE MEDICAL DEPARTMENT FOR 1934.



INTRODUCTION.

The policy of decentralization advanced a stage further during the year and it may now be said to have been fulfilled so far as it applies to the Medical Department. Certain Federal institutions which during the process of decentralization were placed under the administration of the Adviser, Medical Services, ceased to be under his control after the 31st December, 1934. Two have been allocated to the States in which they are situated. The Central Mental Hospital, Tanjong Rambutan, is now administered by the State Medical and Health Officer, Perak, and the Sungei Buloh Settlements by the State Medical and Health Officer, Selangor. The closer cohesion between the responsible authority and the institutions thus effected will, it is anticipated, facilitate their administration. The only Federal institution now subject to the Adviser's control is the Institute for Medical Research.

The process of decentralization has progressed smoothly and its accomplishment has not resulted in any noticeable deterioration of efficiency in the State medical departments, or in the co-ordination of the health measures of the country as a whole. The steadily improving standard of health of the community during the past three years is sufficient testimony that this is so. It would, however, be out of place to indulge in complacency at this juncture in the absence of any assurance that the high level of health prevailing during recent years will continue indefinitely.

I.—ADMINISTRATION.

A.—STAFF.

The title "Adviser, Medical and Health Services," was changed to that of "Adviser, Medical Services," during the year. The change was made in order to promote uniformity of titles in the medical administrations throughout the Colonies.

The year was remarkable for the number of senior officers retiring on nearing the age limit. The following officers proceeded on leave prior to retirement during the year:

Dr. D. T. Skeen, State Medical and Health Officer, Negri Sembilan, on 11th May, 1934.

Dr. A. G. H. Smart, State Medical and Health Officer, Selangor, on 15th June, 1934.

Dr. W. H. Hart, State Medical and Health Officer, Perak, on 14th September, 1934.

Dr. W. S. Leicester, Medical Officer, on 16th September, 1934.

APPOINTMENTS.

Dr. T. Evans was appointed Health Officer on 26th October, 1934.

DEATH.

I record with deep regret the death of Dr. H. G. Holdbrook, Chief Medical Officer, Penang, which took place in Ireland on the 14th September, 1934.

RESIGNATIONS AND RETIREMENTS.

Dr. A. G. Badenoch, Medical Officer, resigned on the 25th April, 1934.

Dr. P. D. Johnson, Medical Officer, resigned on the 10th June, 1934.

Dr. P. H. Martin, Bacteriologist, Institute for Medical Research, resigned on the 8th August, 1934.

Dr. (Miss) M. C. Cairney, Lady Medical Officer, retired on medical grounds on the 5th May, 1934.

Dr. M. J. Graham, Health Officer, retired on medical grounds on the 17th August, 1934.

This exodus of senior officers together with the number of unforeseen casualties amongst junior officers, created a temporary shortage of personnel towards the end of the year which, however, was adequately covered with the helpful co-operation of the various State administrations and by the ready acceptance of additional duties by the existing staff.

As anticipated in last year's report, it was not found necessary to retrench any officers during the year under review. It is gratifying to record that the retrenchment effected in the previous year had not at the end of the year resulted in any demonstrable deterioration in the public health.

Specialist services have been adequately maintained by officers of the Malayan Medical Service with specialist training and qualifications. A number of officers proceeding on leave during the year have availed themselves of the liberal terms and inducements now offered to officers of the Malayan Medical Service who wish to take special diplomas in conjunction with the study leave prescribed by the regulations for officers during the first ten years of service.

B.—LEGISLATION.

The following is a list of Enactments passed or amended during the year 1934, referring to medical and health work:

1. Registration of Dentists Enactment (No. 34 of 1933) provides for the registration of dentists under the same conditions as the Straits Settlements Ordinance.

2. The Vagrants and Decrepit Persons Enactment (No. 40 of 1933) provides for the establishment and control of settlements for such persons.
3. The Medical Registration Enactment (No. 3 of 1934) brings the medical registration in the Federated Malay States into line with that of the Straits Settlements. Further revision of the Straits Settlements Ordinance is under consideration, which, if it materializes, will require revision of the Federated Malay States Enactment.
4. The Ports (Amendment) Enactment (No. 4 of 1934) in which port health authorities are defined on a "State" basis.
5. The Sanitary Boards (Amendment) Enactment (No. 10 of 1934) which enables a Sanitary Board to control private sewage purification plants.
6. The Pineapple Industry Enactment (No. 2 of 1934) provides for the sanitary control of pineapple factories.
7. The Prevention of Diseases (Amendment) Enactment (No. 12 of 1934) provides for the employment of guards to enforce isolation and authorizes Residents of States to control communicable diseases not defined as "infectious".
8. The Quarantine (Amendment) Enactment (No. 40 of 1934) provides for the vaccination and re-vaccination of immigrants from China and India.

C.—FINANCE.

The total expenditure of the Medical and Health Department for the year was \$3,672,860 (£428,500 6s. 8d.). Of this sum \$2,119,754 (£247,304 12s. 8d.) was incurred under the heading of "Personal Emoluments"; \$1,533,703 (£178,932 4d.) under "Other Charges", Annually Recurrent, and \$19,403 (£2,263 13s. 8d.) was "Special Expenditure".

In addition to the amount directly expended by the department, the Public Works Department expended \$3,672 (£428 8s.) on new buildings for hospitals and other institutions and \$50,000 (£5,833 6s. 8d.) on upkeep, repairs, etc., in respect of Federal and State Services for Perak, Negri Sembilan and Pahang. A sum of \$400,267 (£46,697 16s. 4d.) was expended on anti-malarial measures from Sanitary Boards and other Government funds.

The revenue of the department was \$312,310 (£36,436 3s. 4d.). The total revenue of the Federated Malay States for 1934 was \$58,926,323 (£6,874,737 13s. 8d.) and the total expenditure was \$47,211,228 (£5,507,976 12s.).

II.—PUBLIC HEALTH.

The general health of the community remained satisfactory during the year. It is interesting to record that the past three years, though characterised by severe economic depression, were remarkable for a steadily improving standard of public health. The improvement was accompanied by a relatively low incidence of the major causes of sickness such as malaria, beri-beri, dysentery, venereal diseases and also pneumonia and tuberculosis. The number of admissions to Government hospitals has decreased during the past three years as follows:

1932	...	...	...	...	...	...	85,978
1933	...	...	...	...	...	...	76,297
1934	...	...	...	...	...	...	75,916

The decreased sickness rate and fewer admissions to hospitals during the past three years may be attributed mainly to the large exodus of Chinese and Indian labourers which has been imposed by the slump in the price of tin and rubber. The demand for Chinese labour on tin mines has been further curtailed since the application of the tin quota under the International Tin Restriction Agreement. The immigration of Chinese labourers has, consequently, been on a small scale during the past two years. There has however been a resumption of the immigration of Indian labourers in the latter part of the year. As prosperity returns and the influx of Chinese and Indian labourers approaches more normal proportions, the standard of health may be expected to decline and the incidence of disease to increase. Experience supports the belief that many immigrants possess low powers of resistance against some of the communicable diseases prevalent in this country. It may thus be inferred that health statistics compiled for the past three years reflect the double advantage that many decrepit and sub-healthy labourers have left the country and until recently few susceptible immigrants have entered it. A portent that the resulting wave of improving health has already commenced to recede, is to be found in the increased infant mortality during the year, which has marred an otherwise satisfactory record of health. The infant mortality rate may be regarded as a sensitive index of general health conditions, and the sudden rise from 146 per mille in 1933 to 163 per mille in 1934 may perhaps herald a deterioration in the health of the adult population which will be reflected in the next annual statistics.

POPULATION.

The method formulated by the Registrar-General of Statistics known as the "balancing equation" method has again been adopted. The figure thus arrived at is reached after making due allowance for the excess of births over deaths and the difference between the records of emigration and immigration during the year. The figures of the migrational surplus for Malaya are distributed racially to each State or Settlement in the proportion in which each race in the State or Settlement was to the total number of that race in Malaya as found at the census for 1931.

The population estimated for the year 1934 was 1,631,728. Compared with the population in the previous year, estimated by the same formula, the population in the year under review shows an increase of 33,958 on the previous year's figure of 1,597,770.

In view of the fact that a large number of immigrants entered the Federated Malay States during the second six months of 1934 and are therefore not taken into account in the calculation of the mid-year population, the following table is given to show a truer estimate of the population on 31st December, 1934:

State.	Malays.	Chinese.	Indians.	Others.	Total.
Perak	288,788	307,182	151,012	9,150	756,132
Selangor	132,243	234,538	151,336	13,597	531,714
Negri Sembilan	93,428	88,108	47,594	4,195	233,325
Pahang... ..	116,830	50,276	13,433	1,881	182,420
Total ...	631,289	680,104	363,375	28,823	1,703,591

The comparisons made between birth and death-rates in the years 1933 and 1934 are based on the population estimated in each of the two years by the method of balancing equation and therefore offer true comparative figures representing, as accurately as can be ascertained, the birth and death-rate in each of the two years.

BIRTHS.

There were 57,697 births registered during the year, being an increase of 910 over the total of 56,787 births in the previous year. The birth-rate was slightly increased in the States of Selangor, Negri Sembilan and Pahang, Perak showing a slight decrease.

The birth-rate was 35.4 per mille compared with 35.5 per mille in 1933. Of the total births recorded, 30,268 were males and 27,429 were females, thus giving a sex ratio of male births to female births of approximately 110 : 100. This is the same ratio as for 1933.

DEATHS.

Thirty-four thousand nine hundred and eighty-five deaths were recorded in 1934, an increase of 2,645 over the previous year.

The crude death-rate was 21.4 per mille compared with a crude death-rate of 20.2 per mille for 1933.

The fact that the birth-rate has remained almost the same, while the death-rate has increased, indicates that the increased mortality is probably real and not due to a fallacious statistical factor.

The death-rate for Malays was 23.7 per mille and again proved highest in Perak and lowest in Selangor. The non-Asiatic death-rate showed an increase from 2.5 per mille in 1933 to 3.1 in 1934.

The death-rate for the general population does not indicate any marked deterioration in the standard of public health, except for infants, as the increase in the death-rate is accounted for almost entirely by the higher infant mortality. The Registrar-General for Births and Deaths points out, however, that the infant mortality is one of the most sensitive indicators of changes in public health and tends to reflect conditions which may become evident in the rest of the population later.

INFANT MORTALITY.

The number of deaths of infants under one year of age occurring in each thousand infants born alive was 163 compared with 146 in the previous year.

The infant mortality has increased to the extent of 17 per mille for the whole of the Federated Malay States and has now returned to the rate recorded in 1930. It is difficult to find any explanation for this increase. It is present in every State and in every nationality, except Indians in Negri Sembilan. Amongst the States, it is greatest in Pahang (increase of 36 per mille) and least in Selangor (7 per mille). In every State, the increase is greater amongst Malays than other nationalities, there being an increase of 9 per mille for Selangor and over 30 per mille for the other three States. In Negri Sembilan and Pahang the increase amongst the Chinese also is noteworthy. This is not so evident in the other States.

There has been no change in the method of calculating the infant mortality, and there is no reason to believe that the effects of incomplete registration were any more evident than in other years. The increased mortality is greatest amongst the Malays who are more accurately registered, and less affected by large movements of population than other races.

The suggestion that the higher infant mortality is due to bad economic conditions cannot be supported, since the increase coincides with a period of improving economic conditions. It is possible that the increased employment of mothers, and the increased purchasing power which leads to artificial instead of breast-feeding, may be a possible explanation, but this cannot be accepted as the sole or even the chief cause of the increase. The rise in infant mortality may be accepted as a portent that the unusually healthy conditions experienced during the past few years cannot be expected to continue indefinitely.

A comparison of the infant mortality rates of the following five towns offers an index of health conditions which is derived from known and reliable data:

INFANT DEATHS PER MILLE.

			1934.		1933.		1932.
Kuala Lumpur	...	...	147	...	146	...	133
Ipoh	...	...	95	...	98	...	91
Taiping	...	...	186	...	151	...	144
Seremban	...	...	177	...	170	...	183
Kuala Lipis	...	...	139	...	129	...	143

It is difficult to offer any explanation of the disparity between the figures of these towns in all of which Infant Welfare Clinics are functioning.

III.—HYGIENE AND SANITATION.

1.—SPECIAL DISEASES.

(i).—Malaria.

The number of deaths recorded under the general heading of malaria and of fever of undefined origin, and the percentage of deaths so recorded to deaths from all causes, are shown in the following table:

Disease.	Perak.	Selangor.	Negri Sembilan.	Pahang.	Total.
Malaria	334	180	173	74	761
Fevers of undefined origin ...	7,241	2,824	1,685	1,937	13,687
All causes	16,438	9,882	4,648	4,022	34,990
Percentage ratio of deaths from malaria to deaths from all causes	2.0	1.8	3.7	1.8	2.1
Percentage ratio of deaths from malaria and deaths from fevers of undefined origin to all causes	46.0	30.3	39.9	50.0	41.2

There was a decrease in the number of recorded cases of malaria in all the States. The decrease was most marked in Negri Sembilan where 2,492 patients suffering from malaria were admitted to Government hospitals in 1934 compared with 3,308 in 1933 and 3,136 in 1932. Fifteen thousand seven hundred and ninety cases of malaria were admitted to Government hospitals during the year 1934 compared with 17,130 cases in 1933 and 16,449 cases in 1932. All cases of malaria admitted to hospital are accurately diagnosed and the number of such cases may therefore be regarded as a more reliable index of the incidence of the disease in the areas served by such hospitals than the number of deaths occurring outside hospital which are returned as due to this cause. The anti-malarial measures throughout the country have been maintained as adequately as the need for strict economy permitted. Should evidence accumulate of further recrudescence of malaria in any of the States, increased expenditure on anti-malarial measures will become necessary.

The vigilance of the health authorities in Malaya has been stimulated by the occurrence of epidemics of malaria elsewhere and a strict watch has been maintained to detect and stamp out the first signs of any local epidemic. This is all the more necessary since experience has proved that the incidence of malaria shows a certain periodicity in its decline and recrudescence. There is every reason to believe that during the past few years Malaya has enjoyed a period of natural recession which has no doubt been accentuated by the extensive anti-malarial measures undertaken during recent years. It is hoped that when the country is due to encounter a natural increase in the incidence of malaria these protective measures will, to an appreciable extent, modify its severity.

A noteworthy point has been the occurrence of a local outbreak of malaria at Batu Gajah, Perak, in which *A. barbirostris* was discovered to be the carrier. Since this discovery concerning the outbreak in Batu Gajah, other isolated small epidemics have occurred in other parts of Malaya in which *A. barbirostris* has been incriminated.

A draft Prevention of Malaria Bill has been under consideration by the State Governments during the year, which aims at legislation to empower the Health Authorities to enforce, when necessary, certain anti-malarial measures in areas not at present subject to the provisions of the Labour Code or Sanitary Boards Enactment.

(ii)—Plague.

No case of plague occurred during the year; the last case occurred in 1928.

(iii)—Cholera.

No case of cholera occurred during the year. The Federated Malay States have been free from this disease since 1927.

(iv)—Smallpox.

No case of smallpox occurred. The following table summarizes the number of vaccinations performed during the year :

			Total vaccinations.		Number of recorded results.
Perak	...	...	25,270	...	17,046
Selangor	...	...	25,547	...	19,415
Negri Sembilan	...	...	11,061	...	7,466
Pahang	...	...	5,782	...	2,806

The Lymph Station which is under the Serological Division of the Institute for Medical Research, has been active during the year and issued 56,981 tubes of lymph. This station now meets the bulk of the demand for lymph throughout Malaya. Each batch of lymph has been thoroughly tested clinically prior to its issue for general use.

(v)—Typhus.

Seventeen deaths were recorded as due to tropical typhus; this is one less than was recorded in the previous year. The number of cases treated in Government hospitals increased from 181 in 1933 to 226 in 1934. The increase in the number recorded may be due to the disease being more generally recognised.

Extensive research has been carried out at the Institute for Medical Research relating to the virus of tropical typhus. Investigations were conducted into the problem of the carriers of three typhus-like fevers. Full details of the results attained will be found in the Report of the Institute for Medical Research for 1934.

The Weil-Felix reaction was carried out on 1,167 specimens of serum received from 871 cases by the Division of Bacteriology, Institute for Medical Research. Of these, 181 were diagnosed as suffering from tropical typhus "K" or "rural" type, and 20 from the "W" or "urban" type.

(vi)—Enteric Fever.

Forty-six deaths were recorded as due to enteric fever, the same number as recorded in 1933. Of these, 21 deaths occurred in the five large towns of the Federated Malay States.

The careful control of the large water supplies, and the comparative rarity of flies, may be said to account for the relatively low incidence of enteric fever. Efforts are being made to trace and control carriers with a view to reducing the risks of infection in the large towns.

(vii)—Dysentery and Diarrhoea.

There was an increase in the number of deaths under these headings. One thousand three hundred and ninety-three deaths were recorded, compared with 1,184 in 1933. Selangor again recorded the highest number of deaths due to these diseases. The unusually low incidence of these diseases during the previous year was no doubt due to the exodus of a number of carriers and chronic sufferers. This favourable factor has ceased to operate with the resumption of immigration of Indian labourers, and may account partly for the increased incidence.

(viii)—Cerebro-spinal Meningitis.

Two cases of cerebro-spinal meningitis were reported, both of which ended fatally. The number of cases reported in 1933 was four, all of which were fatal. The cases reported were widely separated, one in Selangor and one in Perak. No epidemic of this disease has yet been encountered in Malaya.

(ix)—Diphtheria.

There were 82 deaths recorded as due to diphtheria as compared with 57 in the previous year. The number of recorded cases was 177 as compared with 211 in 1933. The increase in the number of recorded deaths is most marked in Selangor where 53 of the total deaths occurred, and is probably an indication of more accurate certification. During the year many young children dying, who had not previously been attended by a medical practitioner, were examined for diphtheria. Two hundred and eighty-four swabs taken from dead bodies were examined by the Division of Bacteriology, 21 of which were positive for diphtheria.

(x)—Leprosy.

Sungei Buloh Settlements.—There were 1,104 patients at the beginning of the year as compared with 1,082 for 1933. This number had grown to 1,320 at the end of the year. The total number of those treated in the settlement during the year amounted to 1,695.

It is gratifying to record that 163 patients have been discharged bacteriologically negative and free from any signs of active external lesions. While this figure represents a very satisfactory result of the intensive treatment carried out at Sungei Buloh, there are one or two important points which invite consideration. The first is that many of the discharged patients were, when admitted, suffering from a mild or early form of the disease. The second is that the number of mild cases now admitted bears a smaller relation to the total admissions than formerly. There is therefore a steadily increasing yearly residue of permanent inmates which will swell in future years the numbers of advanced incurable cases. Furthermore, the percentage of discharges calculated on the total number resident may be expected to diminish as the residue increases from year to year. It is noteworthy that the percentage of Indians released during the year is very much higher than of Chinese. It appears that leprosy occurring in Indians in Malaya is of a comparatively mild type, and it is found that Indians respond more readily and with happier results to treatment.

There has been a remarkable fall in the death-rate in the settlement during the past four years. The death-rate was 70 per mille in 1931 and has steadily declined to 30 per mille in 1934.

Treatment.—The routine treatment of leprosy has now been placed on a more satisfactory basis than formerly. The great majority of patients receive treatment with intramuscular or subcutaneous injections of ethyl esters of Hydnocarpus Wightiana oil. A total of 1,289 cases were so treated during the year. A total of 44,452 intramuscular injections were given compared with 24,374 injections in 1933. In addition 8,740 affected areas of skin were treated with intradermal injections.

Care has been taken to ensure as great a measure of accuracy as possible in the assessment of results of treatment. Of 1,104 cases treated throughout the year there were :

Improved	...	...	...	...	871 cases or 79%
Stationary	...	...	...	...	145 ,, 13%
Worse	...	...	...	...	88 ,, 8%

General.—The morale of the settlement has been good throughout the year and the patients have amused themselves with the usual games, entertainments and social activities. It is found, however, that the treatment forms one of the chief subjects of interest amongst the patients and overshadows the other attractions provided to occupy their over-abundant leisure.

During the year 37 Malay patients from Pulau Pangkor Laut were transferred to Sungei Buloh and a special part of the settlement was allotted to them. A mosque is in process of erection. These patients have rapidly improved in health. They have eagerly co-operated in treatment and have been conspicuous in organising games and entertainments.

Kuala Lumpur Leper Asylum.—This asylum is used solely for the accommodation of advanced and incurable cases. There were 330 patients at the beginning of the year and 268 at the end of the year. Patients are permitted less freedom than at Sungei Buloh but they enjoy certain amenities and discipline is well maintained.

(xi)—Tuberculosis.

Tuberculosis in various forms was responsible for 1,394 deaths of which 83 were due to non-pulmonary disease, giving a percentage of 6.0 per cent. of total deaths compared with 1,409 deaths in 1933 and 1,627 in 1932. The problem of how best to combat pulmonary tuberculosis continues to engage the earnest attention of the health authorities and efforts at prevention are pursued in four main directions :

(a) *Education.*—Every endeavour is made by means of films, posters, leaflets, informal talks, etc., to educate the people in methods of cleanliness and personal hygiene with a view to avoiding infection and limiting its spread. This knowledge is being constantly imparted by Health Officers, Sanitary Inspectors, Health Sisters and Nurses and School Medical Officers.

(b) *Improvement of housing and general sanitation.*—Persistent efforts are being made to improve the housing conditions of the poorer classes and every advantage is being taken wherever possible of the powers conferred upon Sanitary Boards to improve existing conditions. Regular inspection of the shop-house type of dwelling, where much of the tuberculosis is contracted, is carried out by the Sanitary Board staff to ensure that overcrowding is avoided.

- (c) *Special measures of sanitation.*—Preventive and curative measures against malaria and ankylostomiasis are carried out on a large scale and have the effect of improving the general health and raising the natural resistance of the people against infection by tuberculosis.
- (d) *Hospital treatment.*—Beds for tuberculous cases are available in most of the Government hospitals but unfortunately admission to hospital is rarely sought voluntarily until the disease has advanced to a late stage. Most early curable cases, admitted, are detected by the Medical and Health Officers in the course of their duties, and for such cases, facilities for modern medical and surgical treatment of tuberculosis are provided in the larger hospitals.

The following table presents figures which offer encouragement to persist on these lines:

Year.	Deaths from tuberculosis occurring in Government hospitals.		Ratio of deaths from tuberculosis per 100,000 population.	
1924	...	1,037	...	73.1
1925	...	1,051	...	72.6
1926	...	995	...	67.4
1927	...	1,118	...	74.2
1928	...	1,074	...	70.0
1929	...	1,078	...	64.4
1930	...	1,061	...	61.5
1931	...	975	...	56.6
1932	...	919	...	51.9
1933	...	821	...	51.4
1934	...	894	...	54.1

2.—GENERAL MEASURES OF SANITATION.

(i)—Sewage Disposal.

The two systems of sewage disposal relied upon in the large towns are:

- (a) Small septic tank installations to serve one dwelling or a small group of houses in residential areas. Encouragement is offered to private owners to instal these tanks wherever they are feasible. Legislation has been introduced to enable Sanitary Boards to exercise control over private sewage purification plants.
- (b) The pail system of night-soil collection and disposal is employed in all towns. The use of rubber buckets for this purpose is proving successful and is steadily superseding the use of metal buckets.

The use of tube latrines in suitable localities was continued, especially in villages, and full opportunity was taken to introduce this simple and effective method of sewage disposal wherever applicable.

(ii)—Refuse Disposal.

Refuse disposal in the larger townships continued to be effected by the removal of all rubbish from house and street bins by covered lorries to a central incinerator. In the larger centres the collection of refuse is carried out daily. Progress has been made in the substitution of concrete street bins for the old metal ones formerly in use.

In most towns and villages incinerators are provided and in many, motor transport is available for the collection of refuse.

The forced draught refuse destructors in Kuala Lumpur and Ipoh have disposed of large quantities of refuse.

(iii)—Drainage.

The problem of drainage is closely associated with anti-malarial measures and for this reason has always received particular attention in Malaya. An instance of this close association occurred in Perak during the year, when the problem of the best means of subduing an outbreak of malaria at Batu Gajah presented itself. The outbreak was discovered to be due to the carrier *A. barbirostris* and required special means to suppress it. Work in this direction has progressed very successfully in conjunction with the Irrigation Department which has undertaken to dredge the river.

(iv)—Water Supplies.

Considerable attention has been given to water supplies during the year and important modifications of the methods of purification have been tried. Tests on the combined use of sodium aluminate and aluminium sulphate were carried out at the Rembau-Coast supply by the Division of Chemistry of the Institute for Medical Research.

Chloramine treatment has been applied to the filtered water of the impounding reservoir supply at Kuala Lumpur and also to the filtered water of the Kampar water supply. This method of sterilization is stated to have particular advantages in the tropics, and it is hoped that marked improvement will result from this treatment. The advantages of the chloramine treatment are stated by the Chief Chemist, Institute for Medical Research, to be that the chloramines formed are more stable than chlorine alone, that the solutions of chloramines impart no taste to the water, and that the bactericidal power of chlorine is increased by the addition of ammonia. The treatment consists of the addition of ammonia in the form of ammonium salt (sulphate of ammonium) prior to chlorination. The Cameron Highlands water supply has engaged attention and a temporary chlorination plant was installed at the settling tanks. It is hoped to effect permanent improvements in the near future.

The problem of a satisfactory water supply for dwellers on the banks of the Perak River has engaged attention for some time and now appears to have been solved satisfactorily. The general scheme consists in providing a chain of wells, each with its own purification plant, to supply the villages on the river banks.

The State Medical and Health Officer, Perak, and the Senior Executive Engineer, Waterworks, have evolved a scheme for special investigation of Perak water supplies. With the co-operation of the Ipoh Branch Laboratory, Institute for Medical Research, one of the supplies was thoroughly examined on alternate months, the intervening months being given to the usual routine water examination schedule. By this means full and accurate data concerning the selected supplies have been obtained.

The existing water supplies to villages, estates, and mines were maintained at as high a standard of purity as the economic conditions permitted.

Two thousand nine hundred and ninety-two samples of water were submitted to the Division of Chemistry, Institute for Medical Research, for chemical examination. In addition a large number of specimens was submitted for bacteriological examination to the Division of Bacteriology, Institute for Medical Research.

(v)—Offensive Trades.

The number of licences granted was restricted as much as was expedient, with a view to keeping the offensive trades within bounds, and efforts to confine them to defined districts were continued.

(vi)—House Inspections.

House to house inspections were carried out regularly in all Sanitary Board areas. The maintenance of sanitary dwellings is engaging the constant attention of the Health Branch, more especially in relation to the problem of badly ventilated and ill-lighted cubicles. The radical improvement of conditions in overcrowded areas is regarded as one of the most potent measures taken against some of the major communicable diseases, and to combat the high infant mortality in towns.

(vii)—Estate Visiting.

Officers of the Health Branch regularly visited estates throughout the year.

The improvement in the financial position of most estates, following the modest rise in the price of rubber which prevailed during the year, has enabled many estates to make amends for past enforced omission to institute or maintain essential health measures. In general, it is found that owners and managers of

the larger estates are glad to accept advice from Health Officers and that they fully appreciate the economic advantages of the measures recommended for the improvement of health conditions on the estates. In so far as their financial resources permit, they have shewn a much appreciated readiness to co-operate. In recent years much discretion has been exercised by visiting Medical Practitioners and Health Officers in making expensive recommendations and this policy was continued during the year. It is now, however, necessary to insist, in an increasing number of instances, on the maintenance of anti-malarial measures at a higher level of efficiency in view of the possibility of an early outbreak of malaria.

The following table gives the estate population for 1933 and 1934 :

State.	1933.			1934.		
	Labourers.	Total estate population.		Labourers.	Total estate population.	
Perak	45,633	69,595	...	51,048	75,282	
Selangor	46,352	72,179	...	52,609	78,683	
Negri Sembilan ...	34,058	41,668	...	38,532	46,936	
Pahang	8,662	10,474	...	11,109	13,068	
Total	134,705	193,916	...	153,298	213,969	

(viii)—Mine Sanitation.

In continuation of the policy adopted in the previous year, more attention was devoted in 1934 to the inspection of mines by Health Officers. The Health Officers carried out the same routine inspections as they applied to estates and, in so far as the Labour Code permits, insisted on the maintenance of a reasonable standard of health measures. The majority of the mines visited were in the Kinta district, and of a total of 147 visits paid by Health Officers to mines, 136 were in this area. The number of visits paid in 1933 was 97.

(ix)—Railway Sanitation.

Health conditions on the Federated Malay States Railways, extending into the Unfederated Malay States and the Colony, were under the control of the Railway Health Officer and his staff of Health Inspectors, Anti-Malarial Inspectors and Dressers.

The railway population consisting of employees dwelling all along the railway lines at the end of 1934 was 11,463. The general health was good. Anti-malarial measures were carried out regularly in 153 areas and consisted mainly of oiling by the ten-day brush method. The standard of supervision of anti-malarial work has been high, and no doubt accounts for the satisfactory results achieved by this economical method of oiling.

The Health Officer's staff is responsible for the medical treatment of the Railway employees. Ten full-time dispensaries are maintained at the larger centres where 27,638 were treated, including 1,723 non-railway patients. The water supplies were examined frequently and were maintained at a satisfactory standard. There was no outbreak of epidemic disease.

(x)—School Hygiene.

School medical inspections were carried out by Health Officers, Health Inspectors, Lady Medical Officers and Nursing Sisters.

During the visits to schools in addition to the medical examination, school premises were inspected and such recommendations were made as were thought necessary to improve latrine accommodation, water supply, lighting, ventilation or seating arrangements.

1. Number of schools inspected	...	...	817
2. „ visits to schools	...	...	1,362
3. „ scholars examined	...	...	49,852

The table below gives a summary of the conditions found in the schools visited, with the percentage of each:

				Perak.	Selangor.	Negri Sembilan.	Pahang.
Dental disease	...	...	28.2	...	38.3	...	34.7
Skin disease	...	...	4.9	...	6.1	...	12.8
Eye defects	...	...	0.2	...	1.0	...	3.7
Spleen enlargements	...	...	6.9	...	4.5	...	13.03
Pediculosis	...	...	4.8	...	5.3	...	6.2

The Dental Surgeon is engaged chiefly in the treatment of school children and children of pre-school age. In addition to his duties in Selangor, he visits Negri Sembilan and attends the Colleges at Tanjong Malim and Kuala Kangsar in Perak.

The incidence of dental caries and its distribution amongst the different races is interesting. It is found that dental disease is most prevalent in Chinese and least in Tamils. A point which has been observed by the Dental Surgeon, and which is worthy of note, is that the amount of dental caries in children varies in all races in direct ratio to the child's proximity to a town or village. This is most clearly demonstrable in the case of Malay children. The cause is, presumably, the more sophisticated and less wholesome foodstuffs obtainable in the towns. It is interesting to note that this undue prevalence of dental caries in town-dwelling children has been observed in races separated as far apart geographically and in habits as the Maoris and the Eskimos. This problem is now under investigation by the Professor of Dental Surgery, College of Medicine, Singapore.

The travelling dispensaries visit the vernacular schools in the rural areas and provide treatment for the common diseases of school children. Special attention is paid to the detection and treatment of yaws which is prevalent amongst Malay children in certain areas.

(xi)—Labour Conditions.

A.—ON ESTATES.

Total labour force, 1934=153,298 compared with 134,705 in 1933.

During the second half of 1934 there was a resumption of the immigration of Indian labourers which accounts for most of the increase in the total labour force on estates from 134,705 in 1933 to 153,298 in 1934. That this influx of new labourers has not resulted in any marked deterioration of the comparatively high standard of health on estates prevailing during the previous two years, is evident from the lower death-rate for 1934. The death-rate from all diseases for estate labourers has remained steady during the past three years :

Year.							Death-rate.
1932	...	...	...	...	...	...	5.4
1933	...	...	...	...	...	...	5.5
1934	...	...	...	...	...	...	5.4

The slight decrease in 1934 is all the more remarkable since many of the Indian immigrants were probably not yet completely acclimatised by the end of the year and had not acquired immunity to the local strains of prevailing diseases.

Experience supports the belief that many immigrants possess low powers of resistance against some of the communicable diseases prevalent in this country. With a continuance of immigration on a large scale it is therefore advisable to observe, carefully, health conditions on estates with a view to detecting any marked or sudden deterioration.

The improved financial position of most estates has enabled improvements in the conditions of the labourers to be proceeded with and as the price of rubber improves no doubt continued attention may be expected in this direction. One favourable effect of the slump in the price of rubber has been to stabilise, to an increasing extent, the labour forces, so that there has been much less movement of labourers from place to place. It is probable that this tendency towards the settlement of labourers and their families on the estates has been a prominent factor in maintaining the general standard of health of the estate population.

The following table shows the distribution by districts of the labour force, and the death-rate in each district :

District.	Average labour force.		Number of deaths.		Death-rate per mille.	
Perak—						
Krian	...	6,944	...	27	...	3.9
Selama	...	1,767	...	8	...	4.5
Larut and Matang	...	5,500	...	31	...	5.6
Upper Perak	...	454	...	4	...	8.8
Kuala Kangsar	...	7,503	...	58	...	7.7
Kinta	...	7,362	...	44	...	6.0
Batang Padang	...	8,266	...	42	...	5.1
Lower Perak	...	10,353	...	38	...	3.7
Sitiawan	...	2,849	...	11	...	3.9

District.		Average labour force.		Number of deaths.		Death-rate per mille.
Selangor—						
Kuala Lumpur	...	5,984	...	28	...	4.7
Ulu Selangor	...	9,668	...	63	...	6.5
Ulu Langat	...	6,469	...	22	...	3.4
Klang	...	11,054	...	41	...	3.7
Kuala Selangor	...	10,579	...	60	...	5.7
Sabak Bernam	...	1,150	...	5	...	4.3
Kuala Langat	...	7,705	...	47	...	6.1
Negri Sembilan—						
Seremban	...	12,437	...	79	...	6.4
Tampin	...	7,522	...	49	...	6.5
Kuala Pilah	...	9,185	...	68	...	7.4
Port Dickson	...	8,267	...	36	...	4.3
Jelevu	...	1,121	...	3	...	2.7
Pahang—						
Kuala Lipis	...	2,197	...	21	...	9.6
Raub	...	1,460	...	8	...	5.5
Bentong	...	2,841	...	16	...	5.6
Temerloh	...	2,706	...	4	...	1.5
Kuantan	...	1,864	...	14	...	7.5
Pekan	...	41	...	—	...	—
Total		153,298	...	827	...	5.4

Comparison of death-rates in the four States for 1932, 1933 and 1934:

				Average death-rate among labourers.			
				1932.	1933.	1934.	
Perak	...	...	4.8	...	6.1	...	5.2
Selangor	...	...	5.2	...	4.7	...	5.1
Negri Sembilan	...	...	5.8	...	5.3	...	6.1
Pahang	...	...	8.7	...	5.7	...	5.7

Further details of vital statistics of estate labourers will be found in the report of the Registrar-General of Births and Deaths.

B.—ON MINES.

The great majority of labourers on mines are Chinese. As already reported under the heading “Mines Sanitation” (section viii), 147 visits were paid by the Health Officers to mines. This was an innovation which was introduced with a realization that the inability to comment on existing health conditions in an important industry like tin mining in this country leaves a serious deficiency in the knowledge which is necessary to enable effective steps to be taken to guard the health of the general population. Health returns from mines are not required by law and there are not the same means as exist in the case of estates to enable an accurate estimate to be made of the mortality

amongst the labourers on tin mines, or to enforce measures for the improvement of the health of this particular class of labourers. There is, however, no reason to believe that the labourers on tin mines were any less healthy during the past year than other sections of the population, or to doubt that they shared in the favourable factors which influenced the low death-rates.

The number of labourers employed has been influenced by the quota permitted under the International Tin Restriction Agreement.

The following table shows the number of mining coolies recorded for 1932, 1933 and 1934:

Labour force, all nationalities.					
		1932.		1933.	1934.
Perak	... ..	22,777	...	22,634	27,380
Selangor	... ..	16,275	...	14,140	17,522
Negri Sembilan	... ..	891	...	660	1,156
Pahang	... ..	3,201	...	3,561	3,675
Total		43,144	...	40,995	49,733

C.—IN GOVERNMENT DEPARTMENTS.

Little difficulty was encountered during the year in housing labourers employed by Government in spite of the resumption of a certain amount of work which had previously been curtailed. In common with other classes of labour the general health of Government labourers was satisfactory. Free hospital treatment is provided and the travelling dispensaries attend to the needs of the sick in outlying areas.

(xii)—Housing and Town Planning.

Meetings of the Town Planning Committee of which the respective Health Officers are members, were held during the year and steady progress was made so far as available funds permitted.

Persistent efforts are being made to improve the housing conditions of the poorer classes and every advantage is being taken wherever possible of the powers conferred upon Sanitary Boards to improve existing conditions. Regular inspection of the shop-house type of dwelling, where much of the tuberculosis is contracted, is carried out by the Sanitary Board staff to ensure that overcrowding is avoided. Attempts continued to be made in many areas to restrict the number of temporary houses, and applications to build temporary dwellings have been rarely approved.

(xiii)—**Food in Relation to Health and Disease.**(1)—**BAKERIES.**

All bakeries within Sanitary Board areas were regularly inspected and reported upon by the Health staff. Improvements in the conditions of many bakeries have been reported during the year.

The bakery staff of many bakeries was examined medically.

(2)—**MILK.**

Persistent endeavours to improve the milk supplies of the towns were continued. All milk sellers in Kuala Lumpur were registered with the object of eliminating eventually the more unsatisfactory premises and keeping all handlers of milk under strict sanitary control.

The Central Experimental Station at Serdang is producing a first class milk. In common with other producers, the authorities at Serdang experienced difficulty in preventing an increase of organisms and deterioration of the milk during transit. Improvement has been noticeable since the introduction of vacuum-flask churns.

The Ipoh Government Dairy continued to maintain its improvement in the technique of the production of clean milk.

(3)—**AERATED WATER FACTORIES.**

These were all kept under close supervision and strict attention was given to the requirements of the Sanitary Boards.

(4)—**MARKETS.**

The sanitary condition of the markets was satisfactorily maintained during the year under the close supervision of the Health Department.

(5)—**FOOD FACTORIES.**

The Pineapple Industry Enactment became operative during the year. It provides for the sanitary control of pineapple factories where pineapples are canned chiefly for export. The most important objects are to ensure that each factory provides an adequate pure water supply and that the cutting and sorting of the fruit are done under clean conditions. There are two such factories in Selangor, both of which were inspected.

(6)—**RESTAURANTS AND EATING SHOPS.**

The food, and the conditions of its preparation, in all eating shops within Sanitary Board areas were regularly inspected by the Sanitary Board staff and a reasonable standard of cleanliness was maintained. Outside Sanitary Board areas all restaurants and eating shops are licensed by the Health Officers but in the smaller and remoter places it is often impossible to obtain more than a slight amelioration of unsatisfactory conditions.

Special attention has been given to the way in which food is prepared and vended by food-hawkers. It has long been recognised that they constitute a menace to health and are to some extent responsible for the spread of bowel diseases, particularly enteric fever. In Kuala Lumpur it has been decided to reduce the number of licences issued to food-hawkers; and ice-cream and sweetmeat sellers have been prohibited.

(7)—PIGGERIES.

The policy of many Sanitary Boards to ban the keeping of piggeries within their areas has been continued and extended. Piggeries elsewhere have been closely supervised.

(8)—SAMPLES UNDER THE SALE OF FOOD AND DRUGS ENACTMENT.

The health authorities continued to pay particular attention to tinned food. In view of the large sale of tinned milk in small general stores throughout the country, and its extensive use for infant-feeding, special vigilance is required to see that it is fit for use when sold.

In Perak 38,996 tins of various foodstuffs were destroyed and 83 prosecutions were undertaken under the Sale of Food and Drugs Enactment.

In Kuala Lumpur over 1,000 cases of milk and over 1,500 tins of other foodstuffs were examined and condemned.

(9)—DEFICIENCY DISEASES.

BERI-BERI.

The number of deaths from beri-beri was 340 compared with 254 in 1933 and 264 in 1932.

The deaths were distributed throughout the States as shown in the following table :

State.	Deaths.			
	1932.	1933.	1934.	
Perak	32	49	69	
Selangor	97	97	135	
Negri Sembilan	60	51	75	
Pahang	75	57	61	
Total	264	254	340	

It will be seen that there has been a general increase in 1934 which is most marked in the State of Selangor.

The increase in the number of deaths from beri-beri is coincident with a steady improvement in general prosperity in 1934, and corroborates the observations previously made that the incidence of beri-beri in Malaya bears a direct relation to the degree of prosperity of the community. The explanation probably lies in the greater ability of the poorer classes to buy the more expensive highly polished rice when their purchasing power is higher.

(xiv)—Measures Taken to Spread Knowledge of Hygiene and Sanitation.

The lecture van of the Committee for Public Health Education toured the country giving exhibitions of the films "Aminah" (infant welfare), "Rescue of Swee Kim" (tuberculosis) and films on malaria. Its activities were somewhat hampered by mechanical breakdowns, and as the van was almost worn out, a new van has been ordered to replace it. The van was, however, able to spend two months in each State. The films attracted large audiences, and enquiries from District Officers indicate that they were appreciated and understood.

Health and infant welfare exhibits were staged at the Malayan Agri-Horticultural Show at Kuala Lumpur and attracted 15,000 visitors. Exhibits were also a feature of the district shows at Kuala Kangsar, Morib, Kuang and Kalumpang. The amount of interest aroused, and the intelligent questions put by the visitors, were very encouraging. A small permanent public health museum was maintained in the Selangor State museum.

In Perak the health lectures in villages which were inaugurated in the previous year, were continued and proved popular with the villagers. It was hoped by this means to interest the dwellers in rural areas in rudimentary health matters affecting their daily routine. The lectures were short (not more than quarter of an hour) and dealt with some simple principle of hygiene or sanitation. The lecture was followed by a walk round the kampong, when any insanitary condition was demonstrated and advice was given on the simplest and cheapest way of removing the nuisance. It has been found that the kampong dweller is willing and in many cases eager to adopt measures which will improve his lot, provided that the knowledge is presented to him in the right manner. The reports from Health Officers indicate that these lectures are particularly appreciated in areas where energetic Penghulus and Ketuas encourage the villagers to follow the advice given by the Health Inspectors. One hundred and seventy-six lectures of this kind were given in Perak during the year.

Full use was made of the infant welfare centres to disseminate health propaganda. Efforts were steadfastly directed towards teaching mothers how properly to feed, clothe and care for their infants, and many visits were paid to the homes of mothers for this purpose. By these means it has been found

possible to overcome many of the ignorant prejudices which in the past have been so inimical to infant welfare. An attempt was also made by the staff of the centres to educate the unskilled kampong midwives and restrain them from some of their more objectionable practices.

Extensive propaganda concerning venereal disease was issued from the social hygiene clinics.

(xv)—**Training of Sanitary Personnel.**

Facilities are available in Singapore for candidates who desire to obtain the certificate of the Royal Sanitary Institute, London. The course extends over a period of approximately six months with a terminal written, practical and oral examination in various subjects. Students who pass this examination are recommended for the certificate.

In 1934, fifteen private and nine Government Student Sanitary Inspectors attended the course and seven presented themselves for re-examination. Of these, twenty-seven were successful, six were Sanitary Inspectors from the Federated Malay States.

The course comprises a well-balanced proportion of lectures, laboratory work and practical field work and has attracted a full complement of twenty-five students practically each year since its inception in 1921.

IV.—PORT HEALTH AND ADMINISTRATION.

Port Swettenham.—During the year under review 1,869 ocean-going vessels, comprising 5,882,621 tons, and 1,004 vessels exclusive of native craft, comprising 495,749 tons, entered and cleared this port.

One hundred and twenty-nine inspections were made by the Port Health Officer. A statement showing the nature of work done is given below :

Total ships.	Total tons nett.	Total passengers.		Total examined.		Passengers.		
		Cabin.	Deck.	Crew.	Passengers.	U.	Q.	R.
129	20,614	2,586	66,102	7,615	66,994	694	44,809	32,764

U. = Granted undertaking. Q. = Quarantined. R. = Remaining on ship.

Immigrant Ships.—Forty-one ships from infected ports, included in the above total, brought 35,595 State-aided immigrants and 9,235 ordinary immigrants. They were all admitted to the quarantine camps to complete the appropriate period of observation.

Pilgrim Ships.—Seven pilgrim ships passed through the port—of these five were outgoing and two incoming. No embarkation or landing took place.

During the year 44,951 persons were detained in quarantine, of these 107 remained from the previous year. The camp was occupied for 258 days.

There was no serious outbreak of infectious disease amongst immigrants or passengers.

There were no cases of smallpox or plague and only one case of cholera.

Quarantine Station Hospitals.—The quarantine station general and infectious diseases hospitals were kept closed during the previous two years. On 13th July, 1934, the hospital was reopened to deal with the increasing number of immigrants. Except for a few minor infectious diseases that were kept and treated in section huts, all the sick were dealt with in the hospital.

A comparative statement showing the amount of vaccination done during the last three years is given below:

	1932.	1933.	1934.
State-aided immigrants ...	8	—	} 4,451
Ordinary immigrants ...	492	310	
Camp staff ...	—	—	—
Others ...	—	7	—
Total ...	500	317	4,451

Perak.—No case of suspected infectious disease was reported during the year at either Port Weld or Teluk Anson.

V.—MATERNITY AND CHILD WELFARE.

The scheme for training Malay midwives in Government hospitals for work in the villages has been continued. Midwives so trained are now practising in many Malay centres throughout the country, and are steadily supplanting the unskilled midwives. They are under the supervision of the staff of the Infant Welfare Centre where one is sufficiently near. Maternity cases are received into all Government hospitals. In addition to Government hospitals there are maternity hospitals in Kuala Lumpur and Ipoh which are supported by the Chinese community. There is a maternity ward attached to the General Hospital, Kuala Lumpur, reserved for Malays, which is proving increasingly popular. Fifty-two cases were delivered there in 1934 compared with 16 in the previous year.

Six Infant Welfare Centres were in existence at the beginning of the year—one each at Ipoh, Taiping, Kuala Lumpur, Klang, Seremban and Teluk Anson. Three were added during the year, all in Pahang—one each at Kuala Lipis, Kuantan and Pekan.

There was a total of 179,908 attendances at the centres in 1934.

The centres are under the control of a Lady Medical Officer or a Health Sister. Midwives practising in the towns are registered and supervised from the centres. Vaccinations are performed and minor ailments are treated. Ante-natal work is increasing and includes physical and laboratory examinations, and arrangements for dental treatment. The principal function of the centres, however, is to teach mothers how properly to care for their children. Health visitors are attached to the centres and visit the mothers of newly-born infants and encourage them to come to the centres as soon as they are fit to do so. Special efforts are made to induce Malay mothers to attend and a bus, attached to the centre, offers free transport for the purpose. The educational side of the centres' activities was fully utilised and lectures were given regularly at the clinics to mothers on ante-natal diet and hygiene, the advantages of breast-feeding, the proper time and method of weaning and the evils of improper feeding. Advantage was taken of opportunities to impart simple information on the prevention of malaria, hookworm, tuberculosis, etc.

Experiments on the use of a soya bean compound as a substitute for milk, were continued at Kuala Lumpur. It has been found useful when the price of natural or tinned milk was prohibitive. It was found that mothers and children of all nationalities took it readily but it is troublesome to prepare as the soya bean requires grinding before mixing with sugar and eggs. Data at present are too incomplete to permit its value as an infant food to be assessed.

The formula for making this compound has been supplied by Professor J. L. Rosedale of the College of Medicine, Singapore, and is as follows:

Soya beans of the common yellow variety glycine soya are washed thoroughly and soaked overnight in water. After removing the husks, the beans are ground with water in a stone mill and reduced to a paste, which is filtered through cotton cloth. The resulting milk-like fluid is boiled for 15 minutes in a steam pan thereby ridding it of most of the objectionable bean odour and taste. Before being spray-dried at a temperature of 50-55°C, to each litre of the milk 50 grams cane sugar, 30 grams egg-yolk, 1 gram sodium chloride and 2.5 grams calcium lactate are added, and the mixture again filtered through cotton cloth. The powder was found to be perfectly miscible with water in 12 per cent. solution, yielding a permanent emulsion with only a slightly beany flavour.

Its percentage composition is—

Protein 28.65; fat 16.43; carbohydrate 47.20; ash 3.98;
moisture 3.62; crude fibre 0.12.

The ash contains calcium 0.31; phosphorus 0.47.

VI.—HOSPITALS, DISPENSARIES AND SPECIAL CLINICS.

(1)—HOSPITAL IN-PATIENTS.

The following table shows the hospitals maintained by the Medical Department of each State, the average daily number of patients in each, the total number of patients admitted during the year, the total number of deaths, and the death-rate per hundred admissions :

Hospitals.	Average daily No. of patients.	Total No. of patients admitted.	Deaths.	Deaths per 100 admissions.
I.—PERAK.				
Ipoh, District	282	8,341	786	9.4
Taiping, General	76	2,443	275	11.3
„ District	124	3,910	284	7.3
Batu Gajah	134	3,360	254	7.6
Kuala Kangsar, District ...	67	1,733	145	8.4
„ „ Women's	59	1,557	117	7.5
„ „ Malay	25	890	18	2.0
Teluk Anson, General ...	99	3,067	356	11.6
Kampar, District	140	1,639	220*	13.4
Tapah, District	112	3,348	208	6.2
Parit Buntar, District ...	44	1,364	92	6.7
Tanjong Malim, District ...	28	1,320	78	5.9
Klian Intan, District	20	661	26	3.9
II.—SELANGOR.				
Kuala Lumpur, Bungsar ...	16	578	10	1.73
„ „ General	469	10,110	997	9.86
„ „ Malay	85	2,854	61	2.13
Klang, District	182	3,482	309	8.87
Kajang, District	62	1,593	127	7.97
Kuala Kubu Bahru, District ...	43	1,384	110	7.94
Serendah, District	13	496	22	4.43
III.—NEGRI SEMBILAN.				
Seremban	302	6,092	534	8.76
Kuala Pilah, District	137	2,274	185	8.14
„ „ Women's	62	1,135	112	9.87
Tampin, District	6	329	14	4.26
Port Dickson, District ...	58	1,100	57	5.18
Jelevu, District	36	841	45	5.35
IV.—PAHANG.				
Kuala Lipis, General	92	2,385	120	5.0
Kuantan, General	94	1,964	123	6.3
Bentong, District	74	1,626	154	9.5
Raub, District	64	1,877	110	5.9
Mentakab, District	33	1,156	59	5.1
Pekan, District	22	412	9	2.2
Kuala Rompin	1	10	5	50.0

* NOTE.—Tuberculosis cases are transferred to this hospital.

This table excludes patients in gaol hospitals and criminal vagrant wards (*vide* section VIII) which are included in the return of diseases shown in Tables III and IV on pages 53 and 64.

Many patients were transferred from one hospital to another for special treatment; each patient transferred has been recorded as one case in Table III, which is a return of the total number of in-patients in Government hospitals.

The total number of in-patients admitted during 1934 was 75,916 with 6,030 deaths. The corresponding figures for 1933 were 76,297 patients with 6,024 deaths.

The distribution in the four States was as under:

	Admissions.			Deaths.		
Perak	33,962	...	2,863
Selangor	20,642	...	1,640
Negri Sembilan	11,845	...	947
Pahang	9,467	...	580

The existing hospital accommodation at the end of the year, and the average daily number of in-patients during the year, in the four States are shown hereunder:

			Total number of beds.					Average daily number of patients.	
			1933.	1934.				1933.	1934.
Perak	...	...	2,996	2,856	...	1,308	...	1,230	
Selangor	...	...	1,488	1,550	...	976	...	880	
Negri Sembilan	...	...	1,157	1,001	...	694	...	601	
Pahang	...	...	696	683	...	428	...	382	

Table III (page 53) sets out the full return of all cases treated as in-patients. As a ready indication of the comparative incidence of those diseases or groups of diseases which were responsible for a large number of admissions, the following summary is here included:

PREVAILING DISEASES AMONG HOSPITAL PATIENTS.

Diseases.			Admissions.		Deaths.		Mortality.	
Malaria	...	...	15,790	...	517	...	3.27	
Venereal disease	...	...	3,675	...	101	...	2.99	
Influenza	...	...	4,430	...	9	...	.20	
Chest Affections—								
Bronchitis	...	...	2,639	...	58	...	2.19	
Pneumonia and broncho-	...	...	2,036	...	952	...	46.75	
pneumonia	...	...		...		...
Pulmonary tuberculosis	...	...	1,641	...	752	...	45.82	

Diseases.	Admissions.	Deaths.	Mortality.
Intestinal Affections—			
Dysentery	1,003	177	17.64
Diarrhoea and enteritis ...	1,412	286	20.39
Other Affections—			
Helminthic diseases ...	2,442	10	.40
Beri-beri	470	70	14.89
Anaemia	1,127	187	16.59
Surgical Conditions—			
Chronic ulcers	2,238	1	.04
Wounds	3,698	19	.51
Fractures, etc.	2,486	60	2.41
Abscesses, etc.	2,047	29	1.41

NOTES ON PREVAILING DISEASES AMONG HOSPITAL PATIENTS.

(i) *Malaria*.—There was a decrease in the number of malaria cases admitted to Government hospitals in all the States. The total number of admissions for malaria was 15,790 in 1934 compared with 17,146 in 1933. It will be seen from the following table that the admissions for 1934 are the lowest for the past six years :

	Total cases of malaria.
1929	35,306
1930	36,647
1931	22,901
1932	16,463
1933	17,146
1934	15,790

Yearly average—24,042.

Of the 15,790 cases recorded, the diagnosis was confirmed by microscopic examination in 11,806 and the specific infections so found were :

Sub-tertian infection	64.36 per cent.
Tertian infection	29.54 „
Quartan infection	3.08 „
Mixed infection	3.00 „

Eight cases of blackwater fever were admitted to hospitals, with two deaths. This compares with 19 cases and seven deaths in 1933.

Malaria admissions for each of the twelve months to the hospitals of the four States are shown in the following table :

Months.		Negri								Total.
		Perak.	Selangor.	Sembilan.	Pahang.					
January	...	520	...	197	...	150	...	169	...	1,036
February	...	476	...	161	...	121	...	129	...	887
March	...	537	...	202	...	167	...	141	...	1,047
April	...	550	...	278	...	186	...	158	...	1,172
May	...	755	...	432	...	254	...	228	...	1,669
June	...	1,007	...	375	...	313	...	271	...	1,966
July	...	809	...	295	...	267	...	264	...	1,635
August	....	828	...	280	...	214	...	321	...	1,643
September	...	710	...	191	...	244	...	247	...	1,392
October	...	647	...	174	...	211	...	200	...	1,232
November	...	536	...	181	...	194	...	172	...	1,083
December	...	494	...	164	...	171	...	195	...	1,024

Racial incidence among hospital patients is shown in the table on page 32.

Research of much practical value has been carried out by the Division of Malaria Research of the Institute for Medical Research into the relative value of certain drugs in the treatment of malaria. The results of these researches have been made available from time to time in the form of interim reports. Reports on parasite and spleen surveys on rubber estates have been forwarded to the visiting medical practitioners concerned.

Special attention has been directed to the use of atebrin and the previous year's research has been continued. The comparative efficacy of atebrin and quinine in short curative courses in estate-lines practice has been tested. Under experimental conditions it was found that atebrin possessed little or no advantage clinically over quinine, while from the economic point of view quinine was preferable. It would seem, however, that atebrin is used to its best advantage when mass treatments consisting of curative doses are given for periods of six days to labourers on estates. It is already known that such mass treatments in curative doses bring about a marked reduction in parasite and spleen rates. The cost of such treatment however is high. Full details of the research and its results will be found in the annual report of the Institute for Medical Research, printed separately.

(ii) *Venereal Diseases*.—The total number of cases treated in hospitals during the year was 3,675 with 101 deaths. This subject is discussed more fully on page 39 under the section “Social Hygiene”.

(iii) *Pneumonia*.—The number of cases diagnosed as pneumonia or broncho-pneumonia was 2,036, of which 952 were fatal; the case mortality was therefore 46.75 per cent.

(iv) *Pulmonary Tuberculosis*.—The number of admissions to hospitals was 1,641 compared with 1,848 in the previous year and 1829 in 1932. The case mortality was 45.82 per cent. One of the chief obstacles to the satisfactory treatment of tuberculosis is found to be the difficulty of bringing the poorer class of patients under treatment at a sufficiently early stage of the disease, and the reluctance of labourers to enter an institution until they are too feeble to continue working. For this reason nearly all the patients admitted to hospital are found to be in an advanced and hopeless stage of the disease and the mortality is consequently regrettably high.

(v) *Dysentery*.—The number of patients recorded under “dysentery” was 1,003, and the number of deaths was 177. In addition to cases recorded as dysentery, there were 1,493 recorded as diarrhoea or colitis, with 292 deaths. If the records under the different, though related, headings are combined, the figures for the year are 2,496 admissions with 469 deaths compared with 2,402 admissions and 417 deaths in 1933.

(vi) *Beri-beri*.—The number of cases recorded as beri-beri was 470 compared with 384 in 1933. The steady and gratifying decrease recorded during the previous three years has given place to an increase in 1934 which is coincident with a small but perceptible improvement in general prosperity. It is possible that previously enforced home-grown produce has been replaced by the more expensive highly polished rice to an increasing extent.

(vii) *Anaemia*.—There were 1,127 cases recorded as suffering from “anaemia” with no indication of other pathological condition. As previously noted, many cases so recorded may be suffering from malaria, syphilis or ankylostomiasis. In addition there were recorded 52 cases of anaemia of pregnancy, with 26 deaths.

(viii) *Chronic Ulcer*.—The number of cases of chronic ulcer reported was 2,238 as against 3,486 in 1933 and 3,223 in 1932.

NOTES ON OTHER DISEASES.

(i) *Leprosy*.—The recorded number of new cases of leprosy detected and segregated during the year was 436. The number reported for 1933 was 378. Leper settlements are dealt with in section VII (B), page 44.

Modern treatment has been intensively administered to the patients at Sungei Buloh Settlements. The measure of success may be gauged by the number of those freed from active manifestations of leprosy. Of the 1,693 patients treated during the year 163 were discharged. The Medical Superintendent has devoted much time and thought to experiments and research directed towards improving the treatment of leprosy; and several new possibilities of curative treatment have been explored. Full details of the therapeutic agents used and the results obtained to date will be found in the report on leper settlements on page 44.

(ii) *Enteric Fever*.—The number of cases diagnosed was 178 compared with 262 in 1933. There were 40 deaths compared with 45 deaths in 1933. One thousand nine hundred and sixty-two Widal reactions were done at the Institute for Medical Research and of these, 155 were positive to *B. typhosus*.

(iii) *Tropical Typhus*.—The number of cases during the year was 225 with 18 deaths.

The Weil-Felix reaction was carried out on 1,167 specimens submitted to the Institute for Medical Research from 871 patients. Of these, 181 were diagnosed as suffering from “rural” and 20 from “urban” type of tropical typhus.

(iv) *Leptospirosis*.—There were 11 cases diagnosed, with seven deaths.

(v) *Japanese River Fever*.—There were seven cases with no deaths.

(vi) *Cancer*.—The number of patients in Government hospitals recorded as suffering from malignant tumours was 423, of whom 162 died.

Specimens of tumours from 239 cases were submitted to the Institute for Medical Research for diagnosis. Of these, 21 were benign and 95 malignant.

The relatively low incidence of cancer in Malaya is noteworthy and has engaged the attention of F. L. Hoffman, LL.D., Consulting Statistician, Newark, N.J., who finds that the proportion of persons 55 years of age and over in the Straits Settlements is only 4.3 per cent. for males and 5.2 for females. This he attributes to the vast turnover of persons coming and going, giving an average duration of residence in Malaya of only about three years. The immigrant element naturally tends to disturb the sex ratio on the one hand and the age distribution on the other. He concludes that the age distribution of male Chinese and Indians who together constitute 59.7 per cent. of the male population is mainly determined not by natural causes but by the age distribution of immigrants. This age distribution has an important bearing on the incidence of cancer which is a disease of later life and it probably accounts largely for the low incidence of cancer in the Federated Malay States.

It is interesting to compare the death-rate for cancer in the Federated Malay States with that in certain centres for which figures are cited by Dr. Hoffman :

Federated Malay States	...	...	11.3	per 100,000
Singapore	...	...	40.6	„
Colombo	...	...	43.1	„
Bangkok	...	...	13.0	„
Havana	...	...	13.0	„
Bombay	...	...	13.2	„
London	...	...	148.5	„
Paris	...	...	149.7	„
Berlin	...	...	165.1	„
Vienna	...	...	208.4	„

RACIAL INCIDENCE OF CERTAIN DISEASES AMONG HOSPITAL
IN-PATIENTS.

Diseases.	Chinese.		Indians.		Malays.		Others.	
	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Malaria	5,157	312	9,001	178	1,372	15	256	11
Dysentery and diarrhoea	640	164	1,370	233	228	5	43	6
Pneumonia and broncho- pneumonia	717	455	1,202	467	103	23	14	7
Pulmonary tuberculosis ...	865	480	604	253	129	25	28	6
Cirrhosis of liver	253	108	61	26	19	8	9	5
Chronic ulcer	1,129	1	655	—	417	—	37	—
Beri-beri	383	68	14	—	72	1	1	1
Appendicitis	71	5	114	5	18	—	59	—

HOSPITAL ADMISSIONS AND DEATHS, BY RACES, FOR ALL DISEASES.

Race.		Admissions.		Deaths.		Case mortality, per cent.		Admission rate, per cent.	
Chinese	25,845	...	3,424	...	13.24	...	34.05
Indians	39,262	...	2,322	...	5.91	...	51.71
Malays	8,755	...	195	...	2.22	...	11.53
Others	2,054	...	90	...	4.38	...	2.71
Total		...	75,916	...	6,031	...	7.94	...	100.00

The explanation of the higher mortality among Chinese patients, as shown above, is to be found in the comparative reluctance of the Chinese to enter hospital until disease is far advanced.

(2)—OUT-PATIENTS.

The total number of out-patients treated during the year is recorded as 607,643. This comprises those treated at all Government hospitals and dispensaries, including travelling dispensaries, as well as patients visited in their own homes: it does not include those treated at Infant Welfare Centres, or at school inspections, nor does it include attendances at special clinics, e.g., social hygiene and ophthalmic clinics, all of which are recorded elsewhere in this report.

These out-patients can be classified under three headings :

	Male.	Female.	Total.
I.—At Hospitals	174,747	59,235	233,982
II.—At Stationary Dispensaries ...	160,180	50,447	210,627
III.—By Travelling Dispensaries ...	121,403	41,631	163,034
Total	456,330	151,313	607,643

The figures for the four States are shown below :

(1)—PERAK.

	Male.	Female.	Total.
I.—At Hospitals	51,855	19,038	70,893
II.—At Stationary Dispensaries ...	59,064	19,272	78,336
III.—By Travelling Dispensaries :			
(a) Road	38,627	12,436	51,063
(b) River	10,659	2,292	12,951
	160,205	53,038	213,243

(2)—SELANGOR.

	Male.	Female.	Total.
I.—At Hospitals	42,755	13,517	56,272
II.—At Stationary Dispensaries ...	73,238	22,924	96,162
III.—By Travelling Dispensaries ...	32,429	11,455	43,884
	148,422	47,896	196,318

(3)—NEGRI SEMBILAN.

	Male.	Female.	Total.
I.—At Hospitals	29,491	10,670	40,161
II.—At Stationary Dispensaries ...	18,682	4,193	22,875
III.—By Travelling Dispensaries ...	12,639	5,923	18,562
	60,812	20,786	81,598

(4)—PAHANG.

	Male.	Female.	Total.
I.—At Hospitals	50,646	16,010	66,656
II.—At Stationary Dispensaries ...	9,196	4,058	13,254
III.—By Travelling Dispensaries :			
(a) Road	14,057	5,232	19,289
(b) River	12,992	4,293	17,285
	86,891	29,593	116,484

A return of the diseases of out-patients is given in Table IV.

**(3)—LABORATORY AND POST-MORTEM EXAMINATIONS
IN HOSPITALS.**

Laboratory.

(a).—BLOOD FILM EXAMINATIONS.

States.	Number of patients examined.	Number positive for malarial parasites.				Total number of examina- tions of blood films.
		Sub- tertian.	Benign tertian.	Quartan.	Mixed infection.	
Perak	54,863	6,206	4,395	211	300	109,763
Selangor	27,561	2,166	2,443	145	68	45,847
Negri Sembilan	17,573	2,196	884	158	73	38,610
Pahang	12,713	1,356	711	94	104	35,351
Total	112,710	11,924	8,433	608	545	229,571

In this table cases of mixed infection have been included also under the specific headings.

Sub-tertian malaria was again the commonest form of infection in all four States.

(b).—MICROSCOPICAL EXAMINATION OF FÆCES.

States.	Number of patients examined.	Positive for Entamœba histolytica.	Positive for ova.			Total number of examina- tions.
			Ascaris.	Ankylos- tome.	Mixed infections.	
Perak	42,732	483	11,768	3,868	1,557	68,497
Selangor	19,101	102	4,898	1,766	480	25,912
Negri Sembilan ...	11,899	71	2,438	1,150	343	22,397
Pahang	10,837	105	1,914	1,432	441	28,590
Total ...	84,569	761	21,018	8,216	2,821	145,396

(c).—POST-MORTEM EXAMINATIONS.

	Medico-legal.		Clinical.	
Perak	374	...	575
Selangor	331	...	133
Negri Sembilan	125	...	46
Pahang	78	...	47
Total	908	...	801

(4)—DISEASES AMONG EUROPEANS.

The figures for in-patients which follow may be taken as indicative of the incidence of serious disease among the general European population, since Government hospitals are open alike for Government servants and the general public, and no other hospitals or nursing homes are available.

In-patients.—The total number of admissions, exclusive of 72 cases of normal labour, was 858, and there were eight deaths. The number of admissions shows an increase of 69, due no doubt to more Europeans being resident in the country during the year. The causes of death in the eight fatal cases were :

Myocarditis	1
Aestivo autumnal malaria	2
Septicaemia	1
Thrombosis	1
Diarrhoea and enteritis (in children under two years of age)	1
Premature birth	1
Senile debility	1

Out-patients.—

			Male.		Female.		Total.
Perak	...	...	374	...	188	...	562
Selangor	...	...	1,037	...	593	...	1,630
Negri Sembilan	...	...	365	...	201	...	566
Pahang	...	...	691	...	618	...	1,309

The figures for out-patients refer mainly to Government servants and their families, since other European patients are usually treated by private practitioners. The large number of European out-patients shown under Pahang is due to the inclusion of the Gap and Fraser's Hill dispensaries in the figures of that State.

(5)—SURGERY.

The following are the figures returned for surgical operations, excluding ophthalmic surgery, in all the hospitals in the four States :

				Major operations.		Minor operations.
Perak	...	...	...	869	...	3,643
Selangor	...	...	...	593	...	1,439
Negri Sembilan	...	...	...	239	...	1,835
Pahang	...	...	...	14	...	1,139
				<hr/> 1,715 <hr/>	...	<hr/> 8,056 <hr/>

The number of major operations performed in the larger hospitals was as follows :

PERAK.

District Hospital, Ipoh	...	...	...	524
General Hospital, Taiping	...	91		
District Hospital, Taiping	...	10		
		<hr/>		101
District Hospital, Teluk Anson	...	...	...	96
European Hospital, Batu Gajah	...	...	...	32

SELANGOR.

General Hospital, Kuala Lumpur	...	...	436
Bungsar Hospital, Kuala Lumpur	...	...	120

NEGRI SEMBILAN.

General Hospital, Seremban	...	...	221
European Hospital, Seremban	...	...	12

Comparative figures of the major operations performed in 1933 and 1934 are shown below :

			1933.		1934.
District Hospital, Ipoh	...	...	389	...	524
European Hospital, Batu Gajah	...	...	43	...	32
			<hr/> 432 <hr/>	...	<hr/> 556 <hr/>

The figures shown below record the number of major operations performed in the three hospitals in Kuala Lumpur in 1933 and 1934. Emergency surgical work at the District Hospital is carried out by the Medical Officer in charge of that hospital.

	1933.	1934.
General Hospital	467	436
Bungsar Hospital	91	120
District Hospital	22	—
	<hr/> 580	<hr/> 556

The figures below give the return of major operations performed in Seremban:

	1933.	1934.
General Hospital	252	221
European Hospital	22	12
	<hr/> 274	<hr/> 233

(6)—RADIOLOGY.

COMPARATIVE TABLE OF WORK DONE DURING THE LAST TWO YEARS.

		X-Ray examinations.			Treatments.		
		1933.	1934.		1933.	1934.	
Kuala Lumpur	...	1,228	1,122	...	1,673	689	...
Ipoh	...	1,354	1,655	...	314	248	...
Total	...	<hr/> 2,582	<hr/> 2,777	...	<hr/> 1,987	<hr/> 937	...

In this table the X-Ray examinations represent the number of patients examined (repetitions being excluded), but the treatments refer to the total number of attendances for treatment.

(7)—OPHTHALMOLOGY.

Special clinics for treatment of diseases of the eye were in operation at the following centres:

- I.—Perak—(a) Ipoh Hospital.
(b) Taiping Hospital.
- II.—Selangor—Kuala Lumpur, General Hospital, Tanglin Out-patient Department.
- III.—Negri Sembilan—Seremban Hospital.
- IV.—Pahang—Kuala Lipis Hospital.

The total number of patients treated in the four States was 9,481, of which 1,313 were in-patients and 8,168 out-patients (the figures record new cases, excluding repetitions and routine examinations).

TABULATED RETURNS.

				Eye diseases proper.	Eye injuries.	Refraction.	General diseases affecting eyes.	Disorganised eyes.	Total.
PERAK.									
(1) Ipoh, In-patients	...	...	...	380	32	19	19	7	457
„ Out-patients	...	...	...	1,765	138	256	12	9	2,180
(2) Taiping, In-patients	...	...	...	135	5	1	1	2	144
„ Out-patients	...	...	...	1,574	98	210	17	5	1,904
SELANGOR.									
Kuala Lumpur, In-patients	...	...	...	372	34	5	5	17	433
„ Out-patients	...	...	...	1,805	244	701	206	18	2,974
NEGRI SEMBILAN.									
Seremban, In-patients	...	...	...	211	11	3	8	7	240
„ Out-patients	...	...	...	624	68	196	13	3	904
PAHANG.									
In-patients	...	...	...	33	2	4	...	...	39
Out-patients	...	...	...	192	2	12	...	...	206
Total In-patients	...	...	...	1,131	84	32	33	33	1,313
„ Out-patients	...	...	...	5,960	550	1,375	248	35	8,168
GRAND TOTAL	...	...	...	7,091	634	1,407	281	68	9,481

				Major operations.		Minor operations.	
Ipoh	...	...	...	166	...	148	
Taiping	...	...	...	65	...	73	
Kuala Lumpur	...	...	...	167	...	330	
Seremban	...	...	...	79	...	117	
Pahang	...	...	...	2	...	8	
Total	...	...	...	479	...	676	

Amongst nationalities the Chinese again preponderated to an extent of over 50 per cent.

A comparison between the work done in 1933 and 1934 is set out below :

Ipoh—	1933.	1934.
In-patients	432	457
Out-patients	2,425	2,180
Taiping—		
In-patients	71	144
Out-patients	1,730	1,904
Kuala Lumpur—		
In-patients	812	433
Out-patients	2,583	2,974

Seremban—

				1933.		1934.
In-patients	...	...	...	250	...	240
Out-patients	...	...	...	695	...	904

Pahang—

In-patients	...	...	...	99	...	39
Out-patients	...	...	...	1,691	...	206

(8)—DENTAL SURGERY.

There is one Dental Surgeon in the Federated Malay States who is an officer of the Selangor Government. He is assisted by a mechanic and a nurse. His principal duty is the treatment of school children. He pays periodic visits to Negri Sembilan, and attends the Colleges at Tanjong Malim and at Kuala Kangsar in Perak.

The motor travelling dental clinic was used in visiting the vernacular Malay schools. A steam launch was commissioned and fitted as a travelling dental clinic to serve the dwellers on the banks of the Bernam River who thus received the benefit of dental treatment for the first time. Large numbers of Malays and Chinese availed themselves of the facilities offered.

The recruits of the Federated Malay States Police Training Depôt and the recruits for the Malay States Regiment were examined by the Dental Surgeon.

During the year the Registration of Dentists Enactment, Federated Malay States, 1931, was repealed and the Registration of Dentists Ordinance, 1933, of the Straits Settlements was adopted. The Dental Surgeon, Selangor, was appointed a member of the Dental Board, Straits Settlements.

The first proceedings to be taken against an unregistered person practising dentistry resulted in a conviction at the Magistrate's Court in Kuala Lumpur in December.

The following table shows the total work done by the Dental Surgeon, Selangor, during 1934 :

State.	Number of patients.	Number of attendances.	Fillings.	Extractions, temporary.	Extractions, permanent.	Scalings.	Dressings.	Gas cases.
Perak ...	236	296	233	41	103	32	21	
Selangor ...	3,589	3,948	985	4,447	2,498	106	114	1,307
Negri Sembilan	1,704	1,744	179	1,991	942	12	10	
Total ...	5,529	5,988	1,397	6,479	3,543	150	145	1,307

(9)—SOCIAL HYGIENE.

The number of patients suffering from venereal diseases has shown a steady decline during the past six years. The total number of cases treated at Government hospitals and clinics is shewn in the following table :

Year.							Total cases treated.
1929	...	...	...	...	...	...	40,802
1930	...	...	...	...	...	...	35,734
1931	...	...	...	...	...	...	31,817
1932	...	...	...	...	...	...	25,207
1933	...	...	...	...	...	...	23,176
1934	...	...	...	...	...	...	19,704

This satisfactory decline may be attributed to several factors but it is significant that it has been consistent and progressive since the policy of closing the known brothels was first introduced. Other factors, which have been found to coincide with a lessened incidence in other regions cannot, however, be ignored. These are :

- (a) The provision, in recent years, on a large scale of facilities for free treatment which has quickly rendered many cases no longer contagious.
- (b) The economic crisis which has no doubt curtailed the number of visits to brothels.
- (c) The increase in the sex ratio of females to males amongst Chinese in Malaya.
- (d) The favourable effects of propaganda.
- (e) The exodus in recent years of a large number of labourers many of whom, especially the Chinese, are unmarried and particularly subject to venereal infection.

During the year 19,704 patients were treated for venereal disease as against 23,176 patients in 1933.

The following table shows the nationality, disease and number of those treated throughout the Federated Malay States for the years 1933 and 1934 :

Nationality.			Syphilis.		Gonorrhœa.		Soft sore.		Total number.	
			1933.	1934.	1933.	1934.	1933.	1934.	1933.	1934.
Chinese	...	...	6,689	5,579	2,995	2,491	703	636	10,387	8,706
Tamils	...	...	3,869	3,474	2,973	2,560	1,023	813	7,865	6,847
Malays	...	..	1,682	1,581	943	941	99	109	2,724	2,631
Sikhs	...	...	587	400	441	315	212	106	1,240	821
Eurasians	...	...	64	45	97	54	23	22	184	121
Europeans	...	...	26	8	87	45	17	4	130	57
Others	...	...	362	316	229	166	55	39	646	521
Total	...	...	13,279	11,403	7,765	6,572	2,132	1,729	23,176	19,704

A total of 57,501 injections of arsenical and bismuth compounds were given.

Propaganda.—The importance of this side of social hygiene work has been impressed on all those in charge of State Medical Institutions. Posters in English and the vernacular languages are displayed at all hospitals and dispensaries and pamphlets in these languages are distributed. Lantern lectures were continued during the year. A social hygiene section was on view at the Public Health Exhibition at the Malayan Agri-Horticultural Show and was very well attended.

(10)—HOSPITALS FOR WOMEN.

There are four hospitals reserved exclusively for the admission of women patients. They are situated one each at :

Kuala Lumpur;
Kuala Kangsar;
Kuala Pilah;
Pekan.

At other centres women are admitted to the female wards of Government hospitals.

The hospitals besides treating in- and out-patients serve as centres for medical work amongst women in the surrounding districts. The hospitals are also utilised for the training of Asiatic midwives who when trained return to their villages to practise. The number of such midwives is steadily increasing and they are gradually supplanting the untrained women in rural areas.

(11)—NEW BUILDINGS.

No new buildings were erected during the year.

VII.—INSTITUTIONS FOR MENTAL DISEASES AND FOR LEPROSY.

A.—CENTRAL MENTAL HOSPITAL.

Dr. J. W. Murdoch, Medical Superintendent, was in charge throughout the year. The following is compiled from his annual report :

The number of patients daily resident in the hospital increased by 44 during the year. The number resident on 1st January, 1934, being 2,506 and on 31st December, 1934, being 2,550. In 1933 there was a reduction of 66.

The admissions for the year under review totalled 881. This is an increase of 84 on the number for 1933. Eight hundred and six admissions were from the Federated Malay States.

The most common forms of mental disorders among the admissions were :

Confusional insanity	...	...	...	...	397
Senile dementia	...	...	...	...	146
Dementia præcox (primary dementia)	...	...	...	...	109
Melancholia	...	...	...	...	48
Mania	...	...	...	...	41

The number of cases diagnosed as confusional insanity is greater than in previous years but this must not be regarded as showing any change in the type of case admitted. Under confusional insanity have been included the majority of cases showing an excessive apathy or lethargy with an apparent lack of emotion and an associated reduction in bodily fitness. Many of these cases were diagnosed in former years as dementia præcox but as many cases improve comparatively quickly this diagnosis is considered to be an erroneous one and confusional insanity (or acute exhaustive of toxic insanity) is a more correct description.

The most common aetiological factors that could be ascertained were :

Intestinal worms in 209 cases ;

Syphilis in 116 cases.

The proportion of admissions found to be infested with intestinal worms was 23.72 per cent. This is less than last year and very much below the rate that might be expected. Other aetiological factors are similar to those found in previous years. A lack of proper history in the majority of cases makes it difficult to indicate other causative factors with any degree of reliability.

The treatment of patients was carried out as thoroughly as possible. All the forms of treatment hitherto in use were continued. One new form of treatment—the intravenous injection of acriflavine—was begun as an experiment towards the end of the year. This appears to have a very good tonic effect and the majority of patients so treated improved considerably in physical health. This is of great advantage as improvement in physical health is often antecedent to mental improvement.

Six hundred and nineteen patients were discharged during the year. Two hundred and eighty-eight were discharged as recovered. This is 32.69 per cent. on the admissions and compares somewhat unfavourably with the rate for 1933 which was 42.15 per cent. The proportion of those discharged as relieved is however correspondingly increased and is due to the continuation of the practice of early discharge.

A larger number was discharged as unimproved than in 1933. These cases are removed at the request of relatives and this is usually done to give the patient native treatment (in some cases this may be psychologically sound) or to effect the repatriation of the patient when the relatives return to their own country.

Of those discharged as recovered, 191 out of the total of 288 were cases of confusional insanity which is the condition from which recovery is most to be expected.

The number of deaths was 190. This number is 48 less than in 1933 and gives a rate of 5.16 per cent. on the total treated and 7.25 per cent. on the daily average number of patients in the hospital.

Seventeen patients absconded during the year and were not brought back to the hospital. This is the same number as in 1933. The majority of those who absconded had worked and lived on the farms where they were allowed considerable liberty. In many cases the patient by absconding merely anticipated his discharge.

Fifty-six criminal patients were admitted during the year. This is 18 more than in 1933. Thirteen of these were discharged as not insane.

The general health of the hospital was good throughout the year. In September there was a small epidemic of influenza which was fortunately of a mild type and caused little inconvenience. The incidence of dysentery was low. This good result is the effect of the measures taken in 1932 and 1933. The septic tank and automatic flushes at the male infectious diseases ward, which were built by hospital labour, are working well and have justified the money and time spent on them.

The number of cases of malaria was 101. This is about half the number affected in 1933.

Occupational therapy was continued as in former years. Only about 50 per cent. to 60 per cent. of patients are employed, though recent investigations in Europe show that as a rule about 90 per cent. to 95 per cent. are employable with resulting benefit to health.

The farms have been fully occupied and the volume of produce has increased. All patients are supplied daily with fruit and vegetables produced on the hospital farms, none being bought from outside sources. All pork required for hospital consumption was produced on the hospital farm and surplus stock to the value of \$1,000 was sold and the proceeds paid to revenue. The production of eggs and poultry increased.

The revenue for the year amounted to \$51,081.60. This is \$2,626.64 less than 1933.

Expenditure for the year amounted to \$268,570.87. This is \$34,966.45 less than for 1933.

The maintenance rate per patient works out at \$106.39 per annum (exclusive of Public Works Department costs). This is a reduction of \$4.32 per patient on the rate for 1933.

Consideration of suitable sites for a new admission hospital to deal with recoverable cases was under consideration at the end of the year.

Appended is a table showing the classification of patients treated during the year:

Diagnosis.	Remaining at end of 1933.			Admitted.			Discharged.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.
A.—CONGENITAL.									
1. Intellectual—									
(a) With epilepsy ...	4	18	22	2	1	3	1	...	1
(b) Without epilepsy ...	50	33	83	23	10	33	7	2	9
2. Moral ...	5	...	5	...	...	...	...	...	...
B.—INSANITY OCCURRING LATER IN LIFE.									
1. Insanity with epilepsy ...	54	17	71	8	4	12	3	2	5
2. General paralysis of the insane	49	4	53	29	7	36	4	1	5
3. Insanity with gross brain lesion	6	1	7	1	...	1	...	...	...
4. Confusional insanity ...	226	72	298	356	41	397	312	38	350
5. Manic depressive—									
(a) Simple ...	8	2	10	2	...	2	1	2	3
(b) Mania ...	70	85	155	9	32	41	9	23	32
(c) Melancholia ...	258	109	367	18	30	48	23	27	50
(d) Alternating insanity ...	16	6	22	...	...	...	...	...	...
6. Delusional insanity—									
(a) Systematised (paranoia)	46	6	52	7	2	9	4	2	6
(b) Non-systematised...	44	3	47	11	...	11	10	1	11
7. Dementia—									
(a) Primary ...	611	225	836	56	53	109	51	26	77
(b) Senile ...	146	46	192	126	20	146	50	8	58
(c) Secondary ...	183	39	222	1	6	7	8	2	10
8. Not insane ...	1	...	1	13	1	14	13	...	13
9. Under observation ...	50	13	63	12	...	12	...	...	...
Total ...	1,827	679	2,506	674	207	881	496	134	630

Diagnosis.	Absconded.			Died.			Remaining at end of 1934.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.
A.—CONGENITAL.									
1. Intellectual—									
(a) With epilepsy ...	...	...	...	...	1	1	5	18	23
(b) Without epilepsy...	1	...	1	3	...	3	62	41	103
2. Moral ...	...	...	...	...	...	...	5	...	5
B.—INSANITY OCCURRING LATER IN LIFE.									
1. Insanity with epilepsy ...	...	...	...	8	3	11	51	16	67
2. General paralysis of the insane	...	...	...	20	7	27	54	3	57
3. Insanity with gross brain lesion	...	...	...	...	1	1	7	...	7
4. Confusional insanity ...	2	...	2	21	7	28	247	68	315
5. Manic depressive—									
(a) Simple ...	...	...	...	...	3	...	9	...	9
(b) Mania ...	...	...	...	7	...	10	63	91	154
(c) Melancholia ...	1	...	1	7	4	11	245	108	353
(d) Alternating insanity ...	...	...	...	...	...	...	16	6	22
6. Delusional insanity—									
(a) Systematised (paranoia)	1	...	1	...	...	...	48	6	54
(b) Non-systematised	...	...	...	3	...	3	42	2	44
7. Dementia—									
(a) Primary ...	8	...	8	25	20	45	583	232	815
(b) Senile ...	2	...	2	27	10	37	193	48	241
(c) Secondary ...	2	...	2	9	4	13	165	39	204
8. Not insane ...	...	...	...	...	...	...	1	1	2
9. Under observation ...	...	...	...	...	...	...	62	13	75
Total ...	17	...	17	130	60	190	1,858	692	2,550

M = Males. F = Females. T = Total.

B.—LEPER SETTLEMENTS.**1.—Federal Leper Settlement, Sungei Buloh.**

Dr. G. A. Ryrie, Medical Superintendent, was in charge throughout the year. The following is compiled from his annual report:

There were 1,104 patients at the beginning of the year as compared with 1,082 for 1933. This number had grown to 1,320 at the end of the year. The total number of those treated in the settlement during the year amounted to 1,695.

It is gratifying to record that 163 patients have been discharged bacteriologically negative and free from any signs of active external lesions. While this figure represents a very satisfactory result of the intensive treatment carried out at Sungei Buloh, there are one or two important points that invite consideration. The first is that the discharged patients were, when admitted, suffering from a mild or early form of the disease. The second is that the number of mild cases now admitted bears a smaller relation to the total admissions than formerly. There is therefore a steadily increasing yearly residue of permanent inmates which will swell, in future years, the numbers of advanced incurable cases. Furthermore, the percentage of discharges calculated on the total number resident may be expected to diminish as the residue increases from year to year. It is noteworthy that the percentage of Indians released during the year is very much higher than of Chinese. It appears that leprosy occurring in Indians in Malaya is of a comparatively mild type, and it is found that Indians respond more readily and with happier results to treatment. This finding is all the more remarkable when it is recalled that a survey of the population of Madras carried out in 1930 showed that 0.85 per cent. of the population showed signs of leprosy.

There has been a remarkable fall in the death-rate in the settlement during the past four years. The death-rate was 70 per mille in 1931 and has steadily declined to 30 per mille in 1934. It is anticipated that with the increasing number of admissions of comparatively able-bodied patients the death-rate during the next few years will decline still further.

There were seven births in the settlement during 1934 with no deaths. This is in marked contrast with the six deaths amongst the seven infants born in 1933.

Treatment.—The routine treatment of leprosy has now been placed on a more satisfactory basis than formerly. The great majority of patients receive treatment with intramuscular or subcutaneous injections of ethyl esters of Hydnocarpus Wightiana oil. A total of 1,289 cases were so treated during the year. A total of 44,452 intramuscular injections were given compared with 24,374 injections in 1933. In addition 8,740 affected areas of skin were treated with intradermal injections. Care has been taken to ensure as great a measure of accuracy as possible in the assessment of results of treatment. The assessment has been based on:

- (a) a scrutiny of each patient's clinical records and response to treatment during the year;

(b) a final examination of the patient's condition at the time of assessment; and

(c) the patient's own statement.

Of 1,104 cases treated throughout the year there were :

Improved	...	...	...	871	cases or 79 per cent.
Stationary	...	...	...	145	,, 13 ,,
Worse	...	...	...	88	,, 8 ,,

In the early part of 1934 it was felt that although treatment with esters was the most satisfactory treatment that could be offered at Sungei Buloh, the results from this line of treatment could not be regarded as altogether satisfactory. During the year efforts were made to improve the routine treatment. Ninety cases were selected who had either become worse on treatment with esters or had for some reason found it unsuitable. They were again given esters after being specially examined before each injection. The dose was varied at each injection to suit the varying condition of the patient, the guiding principle being a drastic reduction in the dosage on the appearance of any sign of temporary instability of health. It was found that very few of these cases were really stationary. There was clinical evidence of a constant minor ebb and flow of leprotic activity. In 15 of the cases treated it was deemed advisable to alternate the injections of esters with intravenous injections of fluorescein. At the end of the year 75 per cent. of these ninety cases, which had previously become worse on esters, had definitely improved and 25 per cent. remained stationary or were worse. This experiment is regarded as of great importance since it shows that the benefit to be derived from treatment with esters depends to a great extent on close individual examination of each patient and continuous and accurate attention to the dosage. It also throws doubt on the efficacy of mass treatment and indicates that such treatment may in certain circumstances prove actually harmful.

A further attempt to improve the quality of the treatment with esters was made by instituting an "interval" treatment with fluorescein or phthalic acid between routine courses of esters. Three hundred and ten cases were so treated and of these 84.4 per cent. showed improvement and 15.6 per cent. remained stationary or were worse. Other forms of treatment given to suitable cases were Tai Foong Chee which was taken by mouth by a number of decrepit and senile cases for whom active treatment was considered inadvisable. This is an old established remedy in which many Chinese sufferers have faith. Chaulmoogra oil has been given in capsules by mouth as supplementary treatment to about 20 cases. Solganal-B. Oleosum, a gold preparation in oil, was given to sixteen patients with leprotic ophthalmic lesions with encouraging results.

General.—The morale of the settlement has been good throughout the year and the patients have amused themselves with the usual games, entertainments and social activities. It is found however that the treatment forms one of the chief subjects of interest amongst the patients and overshadows the other attractions provided to occupy their over-abundant leisure.

During the year 37 Malay patients from Pulau Pangkor Laut were transferred to Sungei Buloh and a special part of the settlement was allotted to them. A mosque is in process of erection. These patients have rapidly improved in health. They have eagerly co-operated in treatment and have been conspicuous in organising games and entertainments.

2.—Leper Asylum, Kuala Lumpur.

This asylum was reopened in March, 1931, for the accommodation of lepers from all the Settlements in Malaya and is reserved for chronic incurable cases.

There were 330 patients at the beginning of the year and 268 at the end of the year. Patients are permitted less freedom than at Sungei Buloh but they enjoy certain amenities and discipline is well maintained.

This asylum is under the control of the Medical Superintendent of the Sungei Buloh Settlements.

3.—Leper Settlement for Malays, Pulau Pangkor Laut.

The 37 Malay patients formerly housed at Pulau Pangkor Laut were transferred to Sungei Buloh Settlements during the year, as already stated.

VIII.—PRISONS CRIMINAL VAGRANT WARDS AND DECREPIT SETTLEMENTS.

A.—GAOL HOSPITALS AND CRIMINAL VAGRANT WARDS.

	1933.			1934.		
	Admis- sions.	Deaths.	Case mortality per cent.	Admis- sions.	Deaths.	Case mortality per cent.
PERAK.						
Taiping Gaol	157	8	5.10	130	3	2.3
Decrepit Settlement, Taiping ...	45	...	...	...	...	...
Batu Gajah Gaol	252	...	...	152	...	...
SELANGOR.						
Kuala Lumpur Gaol and Criminal Vagrant Ward ...	227	6	1.64	161	4	2.75
NEGRI SEMBILAN.						
Seremban Gaol and Criminal Vagrant Ward	124	...	...	74	1	1.35
PAHANG.						
Kuala Lipis Gaol and Criminal Vagrant Ward	8	...	...	12	...	...
Kuantan Gaol and Criminal Vagrant Ward	26	...	...	25	...	...
Total ...	839	14	1.67	554	8	1.44

B.—DECREPIT SETTLEMENTS.

There were 624 inmates in the Federal Decrepit Settlements at Sungei Buloh at the beginning of the year. Owing to the urgent need for increased accommodation in the Leper Settlement at Sungei Buloh it was decided to remove the decrepit inmates elsewhere and absorb the decrepit wards into the Leper Settlement. The remaining 500 inmates of the Decrepit Settlement were therefore transferred and the hospitals at Kampar, Tampin, Serendah and Kajang were utilised to accommodate the majority of them. The Decrepit Settlement at Taiping also received a number of decrepits from Sungei Buloh. In this way adequate accommodation has been found for the inmates and they have been removed without the infliction of hardship.

IX.—INSTITUTE FOR MEDICAL RESEARCH.

In spite of the need for economy imposed by financial considerations, the work of the Institute has been fully maintained at its established high standard. The staff has throughout the period of enforced stringency co-operated loyally in effecting all possible economies and in utilising the available resources to the fullest advantage. It seems evident however that the policy of meeting immediate needs by a process of patching and repair cannot be extended indefinitely if the high reputation for research and investigation enjoyed by the Institute is to be maintained. An increase in expenditure, therefore, will probably be called for to meet current requirements and necessary developments in the near future.

The routine examinations of the divisions of the Institute have occupied a large part of the time of the laboratory staffs and particular attention has been directed to the subject of diphtheria and its carriers by the Division of Bacteriology which also examined a large number of specimens for Weil-Felix reaction.

Each division of the Institute has continued to carry out important researches into problems closely affecting the health of Malaya. Particular attention is invited to the researches of Drs. R. Lewthwaite and S. R. Savor (Division of Pathology) on tropical typhus and Japanese river fever and also to the investigations of Dr. R. Green (Division of Malaria Research) on malaria, which are of high practical value. Both the former diseases have assumed increased importance in recent years and have opened up problems calling for early solution. It is not possible here to do more than refer briefly to some of the points of more general interest. Full details of the work done and its results will be found in the report of the Institute for Medical Research which is printed separately and may be obtained from the Federated Malay States Government Press, Kuala Lumpur.

Research on Tropical Typhus and Japanese River Fever.

The investigations of Drs. R. Lewthwaite and S. R. Savor have further confirmed the great similarity, if not the identity, of the viruses of "rural" tropical typhus ("K" type) and of

Japanese river fever. Experiments have also been undertaken, in collaboration with Mr. E. P. Hodgkin, on the insect carriage of the local typhus-like fevers, that have demonstrated beyond doubt the capacity of the rat flea *X. cheopis* to become a vector of "urban" typhus ("W" type) from rat to rat, and hence, in every probability, from rat to man. On the other hand, *X. cheopis* failed to "carry" the virus of rural typhus and, moreover, experiments with *D. andersoni* (a vector of Rocky Mountain spotted fever) and with *R. sanguineus* were also attended with negative results.

Tests have been carried out to determine the protective value of convalescent guinea-pig serums of the two forms of tropical typhus against the virus of the respective homologous strain. In all guinea-pigs tested, a febrile reaction followed inoculation intra-peritoneally that differed in no significant detail from that observed in control animals. It was found that such degree of protection as is afforded is so mild and inconstant as to preclude such test from having diagnostic value.

Malaria Research.

Investigations were carried out on the use of atebtrin on rubber estates under essentially practical conditions in order to obtain actual data relating to the substitution of atebtrin for quinine. Emphasis was laid on the economic factor. The experiments consisted in the substitution of atebtrin for short "curative" courses of quinine treatment of all cases of fever encountered in the estates lines. Alternate individuals among the workers were designated "A" and "Q" and, if fever occurred, members of "A" group received a six-day course of atebtrin treatment (3 tablets daily) while members of the "Q" group were given a seven-day course of quinine (gr. xx daily). The course of atebtrin treatment cost approximately 90 cents (Straits) while the cost of the quinine course was only about 25 cents (Straits). Through the courtesy of the visiting medical practitioners and estate managers a full series of observations has been possible on two estates. On Estate I the investigation lasted for ten months and on Estate II for a year. Due allowance was made from the experimental point of view for changes in the estate population during the period of investigation. It was found that the floating population of labourers was considerable and such changes in personnel must be taken into account in the interpretation of the investigation.

Under the experimental conditions it was found that little or no advantage was to be gained clinically from the employment of the more expensive atebtrin, while from the economic point of view of estate management quinine was preferable.

An interesting point in connection with the experiment is that on one of the estates under investigation, *A. maculatus*, *A. umbrosus* and *A. separatus* were all found to be infected—the last-named species was recorded as a local carrier for the first time.

In connection with an apparent increase in the incidence of malarial fever in the Coast district of Selangor, Mr. E. P. Hodgkin has made an extensive anopheline survey over a strip of country some 26 miles in length. He has also continued to investigate conditions at Batu Gajah where malaria has occurred in recent years. The carrier was discovered to be *A. barbirostris* and the control of the swampy breeding places is being effected by dredging the river and filling the swamps with the sand so obtained.

The trapping of mosquitoes by means of a human-bait trap was continued on a selected rubber estate for the first six months of the year. The number of *A. maculatus* taken diminished considerably and the investigation which has now lasted for some years was discontinued at the end of June. Full details will be published later in a bulletin.

Division of Chemistry.

Considerable attention has been given to water supplies during the year and important modifications of the methods of purification have been tried.

Chloramine treatment has been applied to the filtered water of the impounding reservoir supply at Kuala Lumpur and elsewhere. This method of sterilization is stated to have particular advantages in the tropics, and it is hoped that marked improvement will result from this treatment. The raw waters of the majority of the water supplies have been examined spectrographically for the presence of mineral constituents.

A large number of determinations of the depression of the freezing point of milk by means of the Hortvet cryoscope have been made during the year on samples of milk taken under supervision from cows of various breeds and from buffaloes. The detailed results will be published in due course.

Lymph Station.

The Lymph Station has supplied most of the requirements for lymph in Malaya and has distributed 56,981 tubes of lymph to Malay States and Straits Settlements. During the year the rabbit-calf-buffalo cycle has been continued. The employment of 80 per cent. glycerine has also been continued. Each batch of lymph has been thoroughly tested clinically prior to issue for general use.

General.

The activities of Capt. S. H. Whitworth, Director of Veterinary Research and Veterinary Adviser, are resulting in the forwarding of an increasing number of interesting specimens from veterinary officers. The examination of material suggestive of tuberculosis, and the classification of the strains of *B. tuberculosis* isolated therefrom has been commenced.

W. M. CHAMBERS,
Acting Adviser, Medical Services,
Malay States.

TABLE I.

STAFF OF THE MEDICAL AND HEALTH DEPARTMENT ON
31st DECEMBER, 1934.

- 1 Adviser, Medical Services
- 1 Secretary to Adviser

MEDICAL BRANCH.

- 4 State Medical and Health Officers
- 2 Deputy State Medical and Health Officers
- 2 Surgeons
- 1 Anæsthetist
- 15 Medical Officers—(duty posts)
- 4 Lady Medical Officers—(duty posts)
- 2 Pharmaceutical Chemists
- 2 Senior Deputy Medical Officers
- 7 Deputy Medical Officers
- 40 Assistant Medical Officers
- 1 Financial Secretary
- 431 Hospital Assistants and Dressers (including 4 X-Ray Assistants)
- 5 Matrons, Grade I—(duty posts)
- 5 Matrons, Grade II—(duty posts)
- 41 European Nursing Sisters (including 7 at Infant Welfare Centres)—duty posts
- 1 Lady Assistant to Radiologist
- 185 Asiatic Nurses (including those at Infant Welfare Centres)
- 29 Asiatic Midwives

HEALTH BRANCH.

- 14 Health Officers (including one in Railway Department)—(duty posts)
- 3 Lady Medical Officers
- 1 Lady Assistant Medical Officer, Infant Welfare Branch
- 1 Dental Surgeon
- 1 European Steward at Quarantine Camp, Port Swettenham
- 3 Assistant Health Officers
- 1 Hospital Assistant, Special Grade
- 50 Health Inspectors (including 2 in Railway Department)
- 1 Vaccinator
- 1 Dental Mechanic
- 1 Assistant Storekeeper

INSTITUTE FOR MEDICAL RESEARCH.

- 1 Director
- 1 Bacteriologist
- 2 Pathologists
- 2 Malaria Research Officers
- 1 Entomologist
- 1 Chief Chemist
- 3 Chemists
- 3 Assistant Medical Officers
- 4 Laboratory Assistants, Grade I
- 14 Laboratory Assistants, Grade II
- 4 Laboratory Assistants, Grade III
- 2 Probationers
- 1 Shorthand Typist
- 1 Storekeeper

CENTRAL MENTAL HOSPITAL.

- 1 Medical Superintendent
- 2 European Male Nurses
- 1 Senior Assistant Physician (Senior Deputy Medical Officer)
- 2 Assistant Physicians (Assistant Medical Officers)
- 1 Inspector
- 1 Assistant Inspector
- 3 Dressers, Grade II
- 1 Dresser, Grade III
- 3 Nurses
- 1 Work Mistress
- 1 Farm Overseer

SUNGEI BULOH SETTLEMENTS.

- 1 Medical Superintendent
- 1 Assistant Medical Officer
- 1 Matron, Grade II
- 1 Hospital Assistant, Grade I
- 2 Dressers, Grade II
- 4 Dressers, Grade III

TABLE II.
STATEMENT OF REVENUE AND EXPENDITURE UNDER
"PERSONAL EMOLUMENTS" AND "OTHER CHARGES", 1934.

Expenditure Detailed.	Personal Emoluments.	Other Charges.	
		Annually Recurrent.	Special Expenditure.
	\$ c.	\$ c.	\$ c.
1. Adviser, Medical Services, Malay States	20,354 47	6,706 04	1,769 91
2. Director, Institute for Medical Research, F.M.S.	137,499 69	40,588 96	1,400 48
3. College of Medicine, Singapore	86,352 00	35,085 85	1,150 00
4. Medical Superintendent, Central Mental Hospital, Tanjong Rambutan ...	57,664 78	210,351 09	555 00
5. State Medical and Health Officer, Perak	711,268 98	396,240 76	7,723 17
6. State Medical and Health Officer, Selangor	576,881 00	305,357 00	4,535 00
7. State Medical and Health Officer, Negri Sembilan ...	295,643 00	184,291 00	
8. State Medical and Health Officer, Pahang	206,768 32	125,089 72	2,063 57
9. Medical Superintendent, Sungei Buloh Settlements, Sungei Buloh	27,321 79	229,992 78	206 12
Total ...	2,119,754 03	1,533,703 20	19,403 25

		Revenue for 1934. Hospital fees, licences, etc.
		\$ c.
1. Adviser, Medical Services, Malay States		1,320 00
2. Director, Institute for Medical Research, Federated Malay States		18,225 34
3. College of Medicine, Singapore		1,180 75
4. Medical Superintendent, Central Mental Hospital, Tanjong Rambutan		51,081 60
5. State Medical and Health Officer, Perak		94,888 84
6. State Medical and Health Officer, Selangor		85,664 00
7. State Medical and Health Officer, Negri Sembilan ...		32,832 00
8. State Medical and Health Officer, Pahang		14,148 93
9. Medical Superintendent, Sungei Buloh Settlements ...		12,968 08

TABLE III.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934.

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
I.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES.					
1. Enteric group--					
(a) Typhoid fever	13	161	38	174	10
(b) Paratyphoid A. ... ..	...	10	...	10	1
(c) Paratyphoid B.	1	2	1	3	...
(d) Paratyphoid C. ... ..	...	...	...	...	...
(e) Type not defined ... ..	...	5	1	5	...
2. Typhus (Tropical)	12	225	18	237	5
3. Seven-day fever ... ..	...	3	...	3	...
4. Undulant fever (Malta fever) ... ..	...	...	...	...	...
5. Malaria—					
(a) Tertian	75	3,488	42	3,563	54
(b) Quartan	12	364	9	376	5
(c) Aestivo-autumnal	151	7,599	349	7,750	115
(d) Mixed infection	11	355	15	366	4
(e) Undefined microscopically	31	1,695	37	1,726	29
(f) Cachexia	54	2,281	63	2,335	62
(g) Blackwater fever ... ..	...	8	2	8	...
6. A.—Smallpox ... ..	...	...	...	...	...
B.—Alastrim ... ..	...	...	...	...	...
7. Measles	7	229	6	236	17
8. Scarlet fever ... ..	...	...	...	...	...
9. Whooping-cough	4	55	1	59	1
10. Diphtheria	8	177	57	185	5
11. Influenza	62	4,430	9	4,492	62
12. Miliary fever ... ..	...	...	...	...	...
13. Mumps	5	112	...	117	3
14. Cholera ... ..	...	...	...	...	...
15. Epidemic diarrhoea ... ..	...	...	...	...	...
16. Dysentery—					
(a) Amœbic	29	634	84	663	24
(b) Bacillary	13	220	67	233	18
(c) Undefined or due to other causes	9	149	26	158	3
17. Plague—					
(a) Bubonic ... ..	...	...	...	...	...
(b) Pneumonic ... ..	...	...	...	...	...
(c) Septicæmic ... ..	...	...	...	...	...
(d) Undefined ... ..	...	...	...	...	...
18. Yellow fever ... ..	...	...	...	...	...
19. Leptospirosis... ..	1	11	7	12	...
20. Leprosy	2	305	4	307	5
21. Erysipelas	1	54	13	55	6
22. Acute poliomyelitis ... ..	...	2	1	2	1
23. Encephalitis lethargica	1	1	1	2	1
24. Epidemic cerebro-spinal fever ... ..	...	2	2	2	...
25. Other epidemic diseases—					
(a) Rubella (German measles) ... ..	...	...	...	...	...
(b) Varicella (chicken-pox)	1	195	...	196	12

TABLE III—(cont.)
 RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
 FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
I.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES—(cont.)					
Other epidemic diseases—(cont.)					
(c) Kala-azar ... ..	...	...	...	...	...
(d) Phlebotomus fever ... ..	...	...	...	...	...
(e) Dengue... ..	2	70	...	72	1
(f) Epidemic dropsy ... ..	...	16	...	16	...
(g) Yaws	5	208	...	213	9
(h) Trypanosomiasis ... ..	...	...	...	...	...
26. Glanders ... ..	...	...	...	...	...
27. Anthrax ... ..	...	...	...	...	...
28. Rabies ... ..	...	...	...	...	...
29. Tetanus ... ..	...	91	70	91	2
30. Mycosis ... ..	...	1	...	1	...
31. Tuberculosis, pulmonary and laryngeal	209	1,641	752	1,850	167
32. Tuberculosis of the meninges or central nervous system ... ..	...	24	21	24	...
33. Tuberculosis of the intestines or peritoneum	1	27	16	28	1
34. Tuberculosis of the vertebral column	6	17	4	23	6
35. Tuberculosis of bones and joints	6	37	2	43	10
36. Tuberculosis of other organs—					
(a) Skin or subcutaneous tissue (lupus)	1	3	...	4	...
(b) Lymphatic system	1	46	4	47	5
(c) Genito-urinary ... ..	...	2	...	2	1
(d) Other organs ... ..	...	15	1	15	1
37. Tuberculosis disseminated—					
(a) Acute ... ..	...	14	12	14	...
(b) Chronic ... ..	...	4	2	4	...
38. Syphilis—					
(a) Primary	26	516	...	542	22
(b) Secondary	56	551	12	607	43
(c) Tertiary	31	355	37	386	33
(d) Hereditary	1	78	44	79	2
(e) Period not indicated	2	34	3	36	3
39. Soft chancre	16	538	...	554	37
40. A.—Gonorrhœa and its complications	63	1,378	4	1,441	50
B.—Gonorrhœal ophthalmia	4	59	...	63	4
C.—Gonorrhœal arthritis	16	160	...	176	14
D.—Granuloma venereum	2	6	1	8	1
41. Septicæmia	3	125	108	128	...
42. Other infectious diseases—					
Filariasis	4	25	...	29	1
Tsutsugamushi fever (Japanese river fever) ... ..	...	7	...	7	...
42A. Infectious disease carriers ... ..	...	13	...	13	...

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
II.—GENERAL DISEASES NOT MENTIONED ABOVE.					
43. Cancer or other malignant tumours of the buccal cavity	3	66	17	69	4
44. Cancer or other malignant tumours of the stomach or liver	3	88	59	91	5
45. Cancer or other malignant tumours of the peritoneum, intestines, rectum ...	1	29	13	30	3
46. Cancer or other malignant tumours of the female genital organs ...	2	76	24	78	5
47. Cancer or other malignant tumours of the breast	3	5	1	8	...
48. Cancer or other malignant tumours of the skin	3	39	8	42	1
49. Cancer or other malignant tumours of organs not specified	7	120	40	127	11
50. Tumours, non-malignant	5	144	1	149	3
51. Acute rheumatism	3	43	...	46	1
52. Chronic rheumatism	6	230	...	236	3
53. Scurvy (including Barlow's disease) ...	...	7	4	7	...
54. Pellagra ... ..	...	2	...	2	...
55. Beri-beri	38	470	70	508	56
56. Rickets ... ..	...	2	2	2	...
56A. Other deficiency diseases ... ..	...	31	4	31	6
57. Diabetes mellitus	6	135	22	141	10
58. Anæmia—					
(a) Pernicious	3	37	7	40	6
(b) Other anæmias and chlorosis	55	1,090	180	1,145	58
59. Diseases of the pituitary body ... ..	...	1	...	1	1
60. Diseases of the thyroid gland—					
(a) Exophthalmic goitre ... ..	...	6	1	6	1
(b) Other diseases of the thyroid gland, myxœdema, etc. ...	...	8	1	8	...
61. Diseases of the para-thyroid glands ...	...	...	...	...	...
62. Diseases of the thymus ... ..	...	...	...	...	...
63. Diseases of the supra-renal glands ...	...	6	...	6	...
64. Diseases of the spleen	1	38	4	39	...
65. Leukæmia—					
(a) Myelogenous ... ..	...	2	1	2	...
(b) Lymphatic ... ..	...	8	7	8	...
(c) Undefined ... ..	...	1	1	1	...
65A. Hodgkin's disease (lymphadenoma) ...	...	4	3	4	...
66. Alcoholism ... ..	...	36	1	36	...
67. Chronic poisoning by mineral substances (lead, mercury, etc.) ...	1	28	2	29	5
67A. Arsenical poisoning ... ..	...	7	...	7	1
68. Chronic poisoning by organic substances (morphia, cocaine, etc.) ...	6	181	1	187	4
69. Other general diseases—					
(a) Auto-intoxication ... ..	...	...	...	...	...
(b) Purpura hæmorrhagica ... ..	...	1	1	1	...
(c) Hæmophilia ... ..	...	3	2	3	...
(d) Diabetes insipidus ... ..	...	5	...	5	...
(e) Other	3	51	4	54	1

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
III.—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES.					
70. Encephalitis (not including encephalitis lethargica)	1	10	6	11	...
71. Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis)	2	42	34	44	...
72. Locomotor ataxia	4	14	1	18	4
73. Other affections of the spinal cord	2	19	3	21	5
74. Apoplexy—					
(a) Hæmorrhage ... ..	...	68	42	68	4
(b) Embolism ... ..	...	10	4	10	...
(c) Thrombosis	1	15	11	16	1
75. Paralysis—					
(a) Hemiplegia	19	94	11	113	19
(b) Other paralyses	13	61	6	74	14
76. General paralysis of the insane ... ..	...	3	...	3	...
77. Other forms of mental alienation ...	19	791	...	810	11
78. Epilepsy	7	100	15	107	3
79. Convulsions (non-puerperal), 5 years or over ... ..	...	6	3	6	...
80. Infantile convulsions (see XII, Diseases of Infancy) ... ..	...	2	...	2	...
81. Chorea ... ..	...	1	...	1	...
82. A.—Hysteria ... ..	...	31	...	31	1
B.—Neuritis	11	187	1	198	9
C.—Neurasthenia	1	69	...	70	2
D.—Neuralgia	5	180	...	185	3
83. Cerebral softening ... ..	...	4	3	4	...
84. Other affections of the nervous system	4	75	8	79	4
85. Affections of the organs of vision—					
(a) Conjunctivitis	2	374	...	376	8
(b) Trachoma	12	87	...	99	13
(c) Tumours of the eye ... ..	...	10	...	10	...
(d) Other affections of the eye ...	84	1,183	1	1,267	93
86. Affections of the ear or mastoid sinns	8	301	1	309	10
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM.					
87. Pericarditis ... ..	...	11	9	11	1
88. Acute endocarditis or myocarditis	...	102	46	102	13
89. Angina pectoris ... ..	...	5	1	5	...
90. Other diseases of the heart—					
(a) Valvular—					
Mitral	15	199	72	214	16
Aortic... ..	1	91	43	92	1
Tricuspid ... ..	...	...	...	...	...
Pulmonary ... ..	...	...	...	...	...
Undefined	2	51	27	53	...
(b) Myocarditis	18	412	231	430	21
(c) Functional ... ..	...	4	...	4	...
(d) Other	1	90	35	91	9

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM—(cont.)					
91. Diseases of the arteries—					
(a) Aneurism	1	9	3	10	3
(b) Arterio-sclerosis ... ..	...	46	11	46	1
(c) Other diseases... ..	1	6	1	7	...
92. Embolism or thrombosis (non-cerebral)	1	8	4	9	...
93. Diseases of the veins—					
(a) Hæmorrhoids	7	182	...	189	6
(b) Varicose veins... ..	1	16	...	17	...
(c) Phlebitis	3	16	...	19	...
94. Diseases of the lymphatic system—					
Lymphangitis	1	55	...	56	1
Lymphadenitis, bubo (non-specific)	18	298	1	316	13
95. Hæmorrhage of undetermined cause .. ..	...	7	3	7	...
96. Other affections of the circulatory system ... ..	...	10	1	10	1
V.—AFFECTIONS OF THE RESPIRATORY SYSTEM.					
97. Diseases of the nasal passages—					
(a) Adenoids ... ..	...	9	...	9	...
(b) Polypus ... ..	...	18	...	18	...
(c) Rhinitis ... ..	...	38	...	38	2
(d) Coryza ... ..	...	98	...	98	1
(e) Other	1	133	...	134	7
98. Affections of the larynx—					
Laryngitis	1	27	...	28	1
99. Bronchitis—					
(a) Acute	54	1,771	16	1,825	36
(b) Chronic	43	868	42	911	34
100. Broncho-pneumonia	21	908	439	929	20
101. Pneumonia—					
(a) Lobar	34	1,064	485	1,098	44
(b) Unclassified	1	64	28	65	4
102. Pleurisy—					
(a) Dry pleurisy	3	129	7	132	5
(b) Pleural effusion	5	67	7	72	2
(c) Empyema	4	40	15	44	5
103. Congestion of the lungs ... ..	...	6	2	6	...
104. Gangrene of the lungs ... ..	...	20	9	20	1
105. Asthma	23	650	7	673	29
106. Pulmonary emphysema ... ..	...	5	2	5	...
107. Other affections of the lungs—					
(a) Pulmonary spirochaetosis ... ..	...	...	...	...	...
(b) Other ... ..	...	53	16	53	3

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
VI.—DISEASES OF THE DIGESTIVE SYSTEM.					
108. A.—Diseases of teeth or gums—					
Caries, pyorrhœa, etc.	4	331	...	335	8
B.—Other affections of the mouth—					
(a) Stomatitis	6	63	...	69	1
(b) Cancrum oris ... ..	...	11	10	11	...
(c) Glossitis ... ..	...	4	...	4	1
(d) Other ... ..	...	34	...	34	...
109. Affections of the pharynx or tonsils—					
(a) Tonsillitis	2	269	...	271	1
(b) Pharyngitis	2	142	...	144	2
(c) Other ... ..	...	49	...	49	...
110. Affections of the œsophagus ...	1	32	5	33	1
111. A.—Ulcer of the stomach ...	12	192	23	204	14
B.— „ duodenum ...	4	110	15	114	5
112. Other affections of the stomach—					
(a) Gastritis	14	504	5	518	13
(b) Dyspepsia, etc. ... ..	...	297	...	297	8
(c) Other	3	96	7	99	5
113. Diarrhœa and enteritis (in children under two years of age) ...	4	359	140	363	9
114. A.—Diarrhœa and enteritis (in patients over two years of age)	26	1,053	146	1,079	22
B.—Colitis	2	81	6	83	1
C.—Sprue	6	92	19	98	3
115. Ankylostomiasis	25	868	5	893	14
116. Diseases due to intestinal parasites—					
(a) Cestoda (tænia) ... ..	...	4	...	4	...
(b) Trematoda (flukes) ... ..	...	...	...	...	...
(c) Nematoda (other than ankylostoma)—					
Ascaris	17	1,535	5	1,552	17
Trichocephalus dispar ...	...	1	...	1	...
Trichina ... ..	...	1	...	1	...
Dracunculus ... ..	...	2	...	2	...
Strongylus ... ..	...	...	...	...	...
Oxyuris	1	1	...	2	...
Medinensis ... ..	...	1	...	1	...
(d) Coccidia ... ..	...	...	...	...	...
(e) Other parasites ... ..	...	1	...	1	...
(f) Unclassified ... ..	...	28	...	28	...
117. Appendicitis	10	262	10	272	6
118. Hernia	12	229	11	241	10
119. A.—Affections of the anus, fistula, etc.	10	208	1	218	8
B.—Other affections of the intestines—					
(a) Enteroptosis ... ..	...	...	...	...	...
(b) Constipation	5	320	...	325	8
(c) Colic	5	379	...	384	7
(d) Other	3	68	16	71	2

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
VI.—DISEASES OF THE DIGESTIVE SYSTEM--(cont.)					
120. Acute yellow atrophy of the liver	...	3	2	3	...
121. Hydatid of the liver	...	...	...	...	...
122. Cirrhosis of the liver—					
(a) Alcoholic	...	2	1	2	...
(b) Other forms	17	340	146	357	25
123. Biliary calculus	2	9	2	11	...
124. Other affections of the liver—					
(a) Abscess	2	77	18	79	4
(b) Hepatitis	7	191	5	198	7
(c) Cholecystitis	2	107	12	109	8
(d) Jaundice	7	125	14	132	6
(e) Other	1	32	16	33	...
125. Diseases of the pancreas	...	6	2	6	1
126. Peritonitis (of unknown cause)	1	60	47	61	3
127. Other affections of the digestive system	...	18	...	18	...
VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL).					
128. Acute nephritis	10	201	59	211	9
129. Chronic nephritis	36	412	145	448	24
130. A.—Chyluria	...	1	...	1	...
B.—Schistosomiasis	...	...	...	...	...
131. Other affections of the kidneys (pyelitis, etc.)	10	260	34	270	11
132. Urinary calculus	3	64	...	67	6
133. Diseases of the bladder (cystitis, etc.)	4	167	11	171	4
134. Diseases of the urethra—					
(a) Stricture	8	108	...	116	4
(b) Other	4	132	2	136	5
135. Diseases of the prostate—					
(a) Hypertrophy	...	6	...	6	...
(b) Prostatitis	...	20	...	20	1
136. Diseases (non-venereal) of the genital organs of man—					
(a) Epididymitis	...	50	...	50	3
(b) Orchitis	...	69	...	69	...
(c) Hydrocele	5	74	...	79	2
(d) Other	13	114	...	127	5
137. Cysts or other non-malignant tumours of the ovaries	1	51	1	52	2
138. A.—Salpingitis	5	102	1	107	3
B.—Abscess of the pelvis	1	1	...	2	...
139. Uterine tumours (non-malignant)	...	14	...	14	...
140. Uterine hæmorrhage (non-puerperal)	...	8	...	8	1

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL)—(cont.)					
141. A.—Metritis	1	23	3	24	...
B.—Other affections of the female genital organs—					
(a) Displacements of uterus ...	...	96	1	96	2
(b) Amenorrhœa	1	18	...	19	...
(c) Dysmenorrhœa ... ..	...	47	...	47	1
(d) Leucorrhœa	9	88	...	97	1
(e) Other	1	187	2	188	9
142. Diseases of the breast (non-puerperal)—					
(a) Mastitis .. ...	...	23	...	23	1
(b) Abscess of breast	1	34	...	35	1
VIII.—PUERPERAL STATE.					
143. A.—Admitted for ante-natal observation	105	741	1	846	117
B.—Normal labour... ..	104	4,421	...	4,525	95
C.—Difficult labour	7	298	12	305	18
D.—Accidents of pregnancy—					
(a) Abortion	7	258	3	265	7
(b) Ectopic gestation	1	16	1	17	1
(c) Anæmia of pregnancy ...	4	52	26	56	6
(d) Other accidents of pregnancy	11	280	28	291	4
144. Puerperal hæmorrhage ... ..	...	16	10	16	...
145. Other accidents of parturition ...	2	74	9	76	4
146. Puerperal septicæmia	1	91	27	92	3
147. Phlegmasia dolens ... ..	...	...	...	...	...
148. Puerperal eclampsia ... ..	...	67	21	67	3
149. Sequelæ of labour	1	23	...	24	...
150. Puerperal affections of the breast	...	3	...	3	...
IX.—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES.					
151. Gangrene	4	34	13	38	3
152. A.—Boil	3	115	...	118	1
B.—Carbuncle	3	45	...	48	1
153. A.—Abscess	45	1,316	4	1,361	64
B.—Whitlow ... ..	...	73	...	73	2
C.—Cellulitis	31	498	25	529	31
154. A.—Tinea	2	84	...	86	3
B.—Scabies	5	278	...	283	8
155. Other diseases of the skin—					
(a) Erythema ... ..	...	13	..	13	...
(b) Urticaria	2	49	...	51	2
(c) Eczema	9	401	...	410	7
(d) Herpes	3	70	...	73	2
(e) Psoriasis ... ..	...	10	...	10	...
(f) Elephantiasis... ..	...	10	...	10	...
(g) Myiasis ... ..	...	1	...	1	...
(h) Dermatitis	1	5	...	6	1

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
IX.—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES—(cont.)					
Other diseases of the skin—(cont.)					
(i) Cutaneous leishmaniasis ...	...	2	...	2	...
Singapore foot ...	...	2	...	2	...
(j) Other ...	13	290	2	303	13
155A. Chronic ulcer ...	182	2,238	1	2,420	108
X.—DISEASES OF BONES AND ORGANS OF LOCOMOTION (OTHER THAN TUBERCULOUS).					
156. Diseases of bones (osteitis, etc.) ...	11	126	3	137	15
157. Diseases of joints—					
(a) Arthritis ...	17	286	5	303	22
(b) Synovitis ...	5	114	...	119	5
158. Other diseases of bones or organs of locomotion ...	11	258	5	269	8
XI.—MALFORMATIONS.					
159. Malformations—					
(a) Hydrocephalus ...	1	2	...	3	1
(b) Hypospadias ...	1	...	...	1	...
(c) Spina bifida ...	...	2	...	2	...
(d) Other ...	...	54	2	54	1
XII.—DISEASES OF INFANCY.					
160. Congenital debility ...	...	45	29	45	2
161. Premature birth ...	5	281	173	286	5
162. A.—Infantile convulsions...	...	81	36	81	...
B.—Other affections of infancy ...	...	236	123	236	4
163. Infant neglect (infants of three months or over)...	...	28	22	28	...
XIII.—AFFECTIONS OF OLD AGE.					
164. Senility—					
(a) Senile dementia ...	...	10	...	10	...
(b) Senile debility ...	46	436	153	482	70
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.					
165. Suicide by poisoning ...	...	4	2	4	...
166. Corrosive poisoning (intentional) ...	...	42	16	42	...
167. Suicide by gas poisoning ...	...	...	...	...	...
168. Suicide by hanging or strangulation ...	...	4	2	4	...
169. Suicide by drowning ...	...	1	...	1	...
170. Suicide by firearms ...	...	...	...	...	...
171. Suicide by cutting or stabbing instruments ...	1	11	4	12	...
172. Suicide by jumping from a height ...	...	...	...	...	...
173. Suicide by crushing ...	...	...	...	...	...

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—(cont.)					
174. Other suicides ... ..	...	1	...	1	...
175. A.—Food poisoning ... ..	...	24	...	24	...
B.—Botulism ... ..	...	...	...	...	...
176. Attacks of poisonous animals—					
(a) Snake bite	1	44	1	45	2
(b) Insect bite	2	58	...	60	3
177. Other poisonings	2	71	13	73	2
A.—Datura poisoning ... ..	...	3	...	3	...
178. Burns (by fire)	8	149	18	157	12
179. Burns (other than by fire)	7	198	15	205	7
180. Suffocation (accidental) ... ..	...	2	1	2	...
181. Poisoning by gas (accidental) ... ..	...	...	...	...	...
182. Drowning (accidental) ... ..	...	2	...	2	...
183. Wounds by firearms (war ex- cepted)	2	19	...	21	...
184. Wounds by cutting or stabbing instruments	50	1,486	11	1,536	42
185. Wounds by fall	33	1,593	2	1,626	59
186. Wounds in mines or quarries	10	216	2	226	7
187. Wounds by machinery	6	141	2	147	2
188. Wounds by crushing (e.g., railway accidents, etc.)	6	80	1	86	6
189. Injuries inflicted by animals, bites, kicks, etc.	3	163	1	166	1
190. Wounds inflicted on active service ... ..	...	...	...	...	...
191. Executions of civilians by bel- ligerents ... ..	...	...	...	...	...
192. A.—Over-fatigue ... ..	...	...	...	...	...
B.—Hunger or thirst ... ..	...	...	...	...	...
193. Exposure to cold, frost bite, etc....	...	...	...	...	...
194. Exposure to heat—					
(a) Heatstroke ... ..	...	1	...	1	...
(b) Sunstroke ... ..	...	3	1	3	...
195. Lightning stroke ... ..	...	1	...	1	...
196. Electric shock ... ..	...	4	...	4	...
197. Murder by firearms ... ..	...	...	...	...	...
198. Murder by cutting or stabbing instruments ... ..	...	6	6	6	...
199. Murder by other means ... ..	...	...	...	...	...
200. Infanticide (murder of an infant under one year)... ..	...	...	...	...	...
201. A.—Dislocation	4	53	...	57	2
B.—Sprain	4	203	...	207	4
C.—Fracture	72	990	56	1,062	87
202. Other external injuries	37	1,240	4	1,277	40
202A. Concussion... ..	3	61	6	64	1
203. Deaths by violence of unknown cause ... ..	...	1	1	1	...

TABLE III—(cont.)

RETURN OF DISEASES AND DEATHS (IN-PATIENTS)
FOR THE YEAR 1934—(cont.)

Diseases.	Remaining in hospital at end of 1933.	Yearly total.		Total cases treated.	Remaining in hospital at end of 1934.
		Admissions.	Deaths.		
XV.—ILL-DEFINED DISEASES.					
203A. Decrepits in Perak ... ..	...	224	...	224	154
204. Sudden death (cause unknown) ...	...	...	...	...	...
205. A.—Diseases not already specified or ill-defined—					
(a) Ascites ... ..	...	10	1	10	...
(b) Œdema	1	20	...	21	...
(c) Asthenia	1	38	13	39	1
(d) Shock ... ..	...	23	15	23	...
(e) Hyperpyrexia ... ..	...	10	4	10	1
B.—Malingering ... ..	...	22	...	22	...
C.—Pyrexia of uncertain origin ...	4	247	11	251	5
D.—Diagnosis undetermined ...	33	412	...	445	40
E.—Observation ... ..	...	79	...	79	56
Total ...	2,821	75,916	6,031	78,737	3,011
NATIONALITIES.					
Europeans	29	932	8	961	15
Eurasians	4	379	15	383	7
Chinese	1,194	25,845	3,424	27,039	1,332
Indians	1,310	39,262	2,322	40,572	1,397
Malays	236	8,755	195	8,991	231
Javanese	36	445	53	481	21
Japanese	4	47	5	51	1
Others	8	251	9	259	7
Total ...	2,821	75,916	6,031	78,737	3,011

TABLE IV.

The annual return of diseases (out-patients) at all Government hospitals, stationary dispensaries, and travelling dispensaries (excluding infant welfare centres, and social hygiene and other special clinics).

Diseases.	Male.	Female.	Total.
I.—Epidemic, endemic and infectious diseases	100,898 ...	31,174 ...	132,072
II.—General diseases not mentioned above	11,304 ...	5,450 ...	16,754
III.—Affections of the nervous system and organs of the senses	28,503 ...	10,687 ...	39,190
IV.—Affections of the circulatory system ...	1,376 ...	283 ...	1,659
V.—Affections of the respiratory system ...	44,424 ...	15,879 ...	60,303
VI.—Diseases of the digestive system ...	110,989 ...	45,278 ...	156,267
VII.—Diseases of the genito-urinary system (non-venereal)	1,751 ...	3,529 ...	5,280
VIII.—Puerperal state	— ...	3,085 ...	3,085
IX.—Affections of the skin and cellular tissues	101,492 ...	24,434 ...	125,926
X.—Diseases of the bones and organs of locomotion (other than pulmonary tuberculosis)	9,247 ...	2,839 ...	12,086
XI.—Malformations	11 ...	— ...	11
XII.—Diseases of infancy	130 ...	76 ...	206
XIII.—Affections of old age	1,760 ...	618 ...	2,378
XIV.—Affections produced by external causes	40,030 ...	6,626 ...	46,656
XV.—Ill-defined diseases	4,415 ...	1,355 ...	5,770
Total ...	456,330 ...	151,313 ...	607,643